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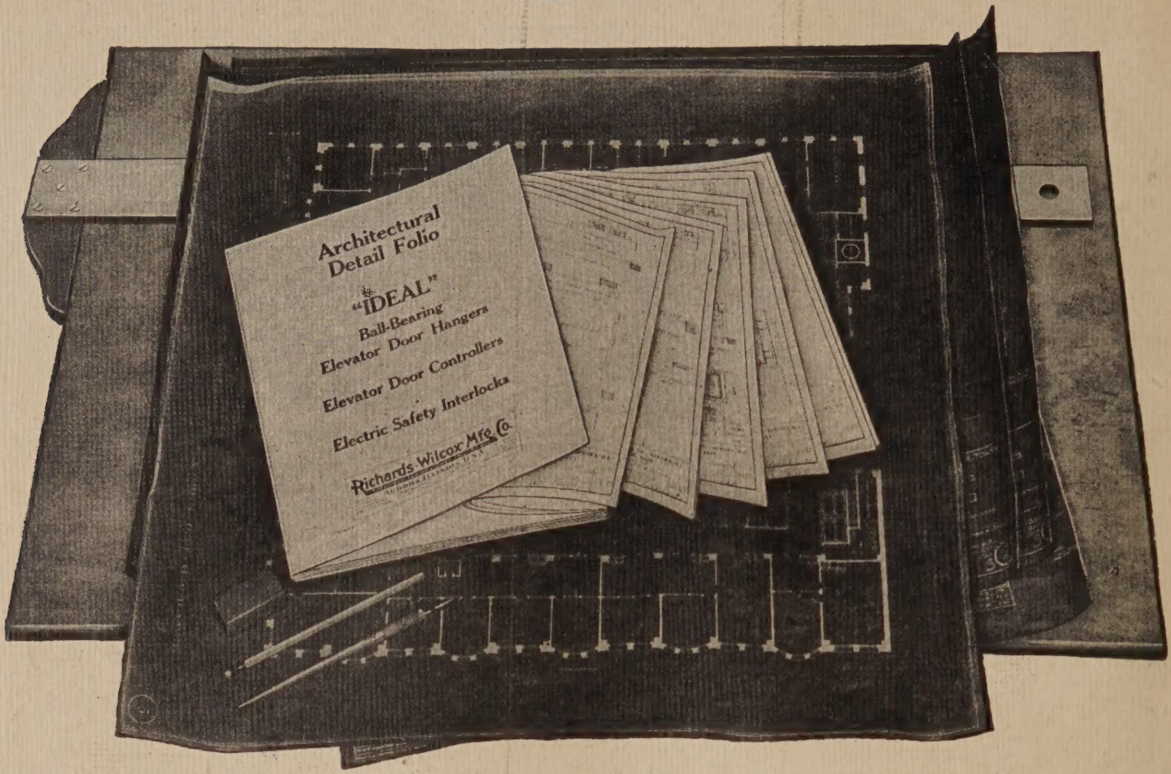
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THE ARCHITECTURAL FORUM

INDEX TO VOLUME XLII

JANUARY TO JUNE INCLUSIVE, 1925

Index to Illustrations According to Subject

BUILDINGS (Complete)

Banks Citizens' National Bank, Waynesburg, Pa., ex. pl.....................301
Essex County Trust Co., East Orange, N. J., ex. pl.....................302
First National Bank, Blairsville, Pa., ex. pl..300
Rye National Bank, Rye, N. Y., ex. pl.....304
Trenton Banking Co., Trenton, N. J., ex. pl.299
Union Market National Bank, Watertown, Mass., ex. pl.....................303
Churches Flatbush Presbyterian Church, Brooklyn, N. Y., ex. in. pl.......221-224, **51, 52**
St. James Church, Lake Delaware, N. Y., ex. in. pl.....................2-4, **7, 8**
St. Paul's Cathedral, London, ex. (From print published by Lloyd Bros., London, May 1, 1852) ....Frontis, May
Clubs Annandale Golf Club, Annandale, Cal., ex. pl.....................173
Aronimink Golf Club, Drexel Hill, Pa., ex...132
Bonnie Briar Country Club, Larchmont, N. Y., ex. in. pl.....................196, **35**
California Yacht Club, Los Angeles, Cal., ex. pl.....................174, 175
Chicago Golf Club, Wheaton, Ill., ex........136
Clearview Golf and Yacht Club, Bayside, N. Y., ex. pl.....................143
Congressional Country Club, Washington, D. C., ex. in.....................132, 146
Coral Gables Club House, Coral Gables, Fla., ex. 161
Creek Club, Locust Valley, N. Y., ex. in. pl. 151, **36, 37**
Essex County Club, Manchester, Mass., ex. in. pl.....................148, **20, 21**
Ferncliff Country Club, West Caldwell, N. J., ex. pl.....................144
Flintridge Country Club, Flintridge, Cal., ex. pl.....................**31, 32**
Garden City Country Club, Garden City, N. Y., ex. in. pl.....................183, 184
Glen View Club, Glen View, Ill., ex. in. pl. **33, 34**
Gulf Stream Golf Club, Palm Beach, Fla., ex. in. pl.....................**25-27**
Highland Park Golf Club, Aiken, S. C., ex..137
Knickerbocker Country Club, Tenafly, N. J. ex. in. pl.....................191, 192
Longwood Cricket Club, Chestnut Hill, Mass., ex. in. pl.....................177, 178
Los Angeles Tennis Club, Los Angeles, Cal., ex. in. pl.....................**40**
Maidstone Club, East Hampton, N. Y., ex. in. pl.....................133, 147, **22-24**
Meadow Brook Club, Westbury, N. Y., ex..132
Midlothian Country Club, Chicago, Ill., ex. pl. **38**
Mid-Ocean Golf Club, Hamilton, Bermuda, ex. 136
Morris County Glf Club, Convent, N. J., ex..135
Nassau Country Club, Glen Cove, N. Y., ex. in. 137, 148
North Hempstead Country Club (Locker Building), Port Washington, N. Y., ex. pl. 181, 182
North Jersey Country Club, Paterson, N. J. ex. in. pl.....................150, **17-19**
Oakland Golf Club, Bayside, N. Y., ex. in. pl. ....Frontis, March, 149, 167
Ojai Valley Country Club, Ojai, Cal., ex. in pl. 189, 190
Old Elm Country Club, Fort Sheridan, Ill., ex. in. pl.....................170
Ottawa Country Club, Ottawa, Ill., ex......169
Palmetto Golf Club, Aiken, S. C., ex.......169
Phelps Manor Country Club, Englewood-Teaneck, N. J., ex. pl.....................140
Phoenix Country Club, Phoenix, Ariz., ex. pl. 172
Pinehurst Golf Club, Pinehurst, N. C., ex..135
Plainfield Country Club, Plainfield, N. J., ex. in. pl.....................134, 138, 146, **28, 29**
Riverdale Country Club, Riverdale-on-Hudson, N. Y., ex. in. pl.....................187, 188
Rod & Gun Club, Dennison, Texas, ex. in. pl. 171
Round Hill Club, Greenwich, Conn., ex.....130
St. Andrew's Golf Club, Mt. Hope, N. Y., ex. 131
Sleepy Hollow Country Club, Brecksville, Ohio, ex. in. pl.....................185, 186
Somerset Hills Country Club, Bernardsville, N. J., ex.....................134
Southern Pines Country Club, Southern Pines, N. C., ex. pl.....................179, 180
Tokeneke Country Club, Tokeneke, Conn., ex. pl.....................142
Westchester-Biltmore Country Club, Rye, N. Y., ex. Locker House.....................132, 196
Wilshire Country Club, Los Angeles, Cal., ex. in. pl.....................**39, 40**
Winged Foot Golf Club, Mamaroneck, N. Y., ex. pl.....................141, **30**
Younktakah Country Club, Nutley, N. J., ex. pl.....................139

KEY TO PAGES AND PLATES

	Pages	Plates	Foreign Plates
January	1- 64	**1- 8**	*17-24*
February	65-128	**9-16**	*25-32*
March	129-212	**17-40**	
April	213-276	**41-52**	*33-40*
May	277-360	**53-60**	*41-48*
June	361-432	**61-92**	

*Illustrated; ex., exterior; pl., plan.

College Buildings Oxford, England, ex. (Pencil Sketches by Harold Field Kellogg) 220, **41-44**
Custom Houses Custom House, King's Lynn, Norfolk, Eng., ex.....................317-322
Government Buildings Capitol Building, Columbus, Ohio, ex. pl.....................6-8
Hotels Allerton House, Chicago, Ill., ex. in. pl. 313-316, **58-60**
Princeton Inn., Princeton, N. J., ex. in. pl. 69-74 **15, 16**
Houses Barkwill, Ernest S., Cleveland, Ohio ex. in. 75, 76, **13, 14**
Bronxville, N. Y., Lewis Bowman, Architect, ex. in. pl.....................55, 56
Bush, Charles H., Cranford, N. J., ex. pl...331
Carstairs, J. H., Ardmore, Pa., ex. in. pl. 214-218, **48-50**
Charleston, S. C. (Some Minor Charleston Houses) ex. in.....................81-88
Cincinnati, O., R. C. Hunter & Brother, Architects, ex. pl.....................51, 52
Fitchburg, Mass. (English Cottage) Prentice Sanger, Architect, ex. in. pl............45, 46
Flushing, N. Y. (Colonial) Roger H. Bullard, Architect, ex. in. pl.....................349, 350
Flushing, N. Y. (Colonial) Treanor & Fatio, Architects, ex. pl.....................337, 338
Freeport, N. Y., Dwight James Baum, Architect, ex. pl. 347, 348
Glencoe, Ill., (Colonial) R. C. Hunter & Brother, Architects, ex. pl............341, 342
Great Neck, N. Y., (Colonial) Oswald C. Hering, Architect, ex. in. pl. 345, 346
Great Neck, N. Y., (Colonial) Patterson-King Corporation, Architects, ex. 333, 334
Hartt, Dudley N., Chestnut Hill, Mass., ex. in. pl. 235-238
Kneeland, Frederick R., Flushing, N. Y.; ex. pl. 330
New Haven, Conn. (Brick Colonial) Charles G. Loring, Architect, ex. in. pl........339, 340
New Rochelle, N. Y. (English Cottage) Leland Hubbell Lyon, Architect, ex. in. pl..34, 41, 42
Pelham, N. Y. (English Cottage) Bloodgood Tuttle, Architect, ex. in. pl.............53, 54
Perrysburg, O. (Colonial) Alfred Hopkins, Architect, ex. in. pl. 343, 344
Riverdale, N. Y. (Two—English Cottage) Julius Gregory, Architect, ex. in. pl. 33, 34, 43, 44, 49, 50
Sample, J. E., Larchmont, N. Y., ex. pl. 332, 334
Savannah, Ga. (Colonial), ex. 329
South Norwalk, Conn., Frank J. Forster, Architect, ex. in. pl. 47, 48
"Stillington," Estate of Leslie Buswell, Gloucester, Mass., ex. in. pl. 307-312, **53-55**
Tucker, Carll, Mt. Kisco, N. Y., ex. in. pl. ....Frontis, Jan. 9-16, **1-6**
Westfield, N. J. (Colonial) Hollingsworth & Bragdon, Architects, ex. in. pl........351, 352
Libraries American International College, Springfield, Mass., ex. in.............245, 250
Beebe Memorial Library, Wakefield, Mass., ex. in. pl. 252, 267, 268
Bedford Branch, Brooklyn Public Library, Brooklyn, N. Y., ex. in. pl............265, 266
Bellport Memorial Library, Bellport, N. Y., ex. 246
Bound Brook, N. J., Memorial Library, ex. in. pl. 247, 259, 260
Carnegie Public Library, Perry, N. Y., ex. pl. 248
Maxwell—George Memorial Library, Rockville, Conn., ex. in. pl.................253, 254
Needham, Mass., Public Library, ex. in. pl. 249, 251, 263, 264
Page, Walter Hines, Huntington, N. Y., ex. in. 247, 249
Pease Memorial Library, Ridgewood, N. J., ex. in. pl. 261, 262
Sharon, Mass. Public Library, ex. in. pl. 257, 258
Whitinsville Library, Whitinsville, Mass., ex. in. pl. 251, 255, 256
Markets Municipal Market Building, Norfolk, Va., ex. in. pl. 305, 306
Motion Picture Theaters Babylon, Babylon, N. Y., ex. in. pl. 417, 418
Bay View, San Francisco, Cal., ex. in. pl. 427, 428
Bellevue, Upper Montclair, N. J., ex. in. pl. 411, 416, 419, 420
Broadway, South Boston, Mass., ex. in. pl...**82**
Capitol, Chicago, Ill., ex. in. pl..368, 374, 375, **80**
Capitol, St. Paul, Minn., ex. in.....365, 371, 398
Chicago, Chicago, Ill., ex. in. pl........370, **75**
Circle Playhouse, Annapolis, Md., ex. in. pl. **67, 68**
Curran, San Francisco, Cal., ex. in. pl......**91**
Eastman, Rochester, N. Y., ex. in. pl..366, 399
Fort Armstrong, Rock Island, Ill., ex. in. pl. 392, **69, 70**
Forum, Los Angeles, Cal., ex. in. pl......**61, 62**
Fox's, Philadelphia, Pa., ex. in...........377-380
Golden Gate, San Francisco, Cal., ex. in. pl. **87, 88**
Granada, San Francisco, Cal., ex. in. pl. **89, 90**
James, Columbus, O., ex. in. pl............**65, 66**
Lafayette, Suffern, N. Y., ex. in. pl......**73, 74**
Mante's, Irwin, Pa., ex. in. pl. 429, 430
Medford, Medford, Mass., ex. in..........431, 432
Orpheum, New Orleans, La., ex. in......366, 372
Palace, Lawrence, Mass., ex. in. pl............**84**
Pinehurst, N. C., ex. pl..................425, 526
Playhouse, New Canaan, Conn., ex. in. pl. 421, 422
Roosevelt, Chicago, Ill., ex. in. pl. Frontis., June **78, 79**
Rye, Rye, N. Y., ex. in. pl.............423, 424
St. George, Framingham, Mass., ex. in. pl. **83**
Tivoli, Chicago, Ill., ex. in. pl............**85, 86**
Winema, Scotia, Cal., ex. in. pl.............**92**
World, Omaha, Neb., ex. in...........367, 371
Museums Field Museum of Natural History, Chicago, Ill., ex. in. pl. 66-68, **11, 12**
Office Buildings Buffalo, N. Y., Edward B. Green & Sons, Architects, ex. pl......119, 120
Straus Building, Chicago, Ill., ex. in. pl. 225-228, **45-47**
Whitman, Clarence & Sons, Inc., New York, N. Y., ex. in. pl.....................**56, 57**
Public Buildings Pittville Pump Room, Cheltenham, Gloucestershire, England, ex. in. pl. 239-244
Schools Laconia High School, Laconia, N. H., ex. pl. 77, 78
Stadiums Grant Park Stadium, Chicago, Ill. 79, 80, **9, 10**
Stores Baltimore, Md., Este Fisher, Architect, ex. 101
Birmingham, Ala., D. C. Whilldin, Architect, ex. 100
Buffalo, N. Y., Edward B. Green & Sons, Architects, ex. pl. 119, 120
Englewood, N. J., Aymar Embury II, Architect, ex. 102
Falmouth, Mass., Hutchins & French, Architects, ex. pl. 111, 112
Forest Hills, L. I., N. Y., William S. Worrall, Jr., Architect, ex. 99
Knoxville, Tenn., Aymar Embury II, Architect, ex. 99
Pinehurst, N. C., Aymar Embury II, Architect, ex. pl. (Two)...............101, 113, 114
Ridgewood, N. J., Albert Marten Bedell, Architect, ex. in. pl. 105, 106
South Orange, N. J., Joy Wheeler Dow, Architect, ex. 97
Upper Montclair, N. J., Francis A. Nelson, Architect, ex. pl. 109, 110
Watertown, Conn., Electus D. Litchfield & Rogers, Architects, ex. pl. 107, 108
Yorkship Village, N. J., Electus D. Litchfield & Rogers, Architects, ex. pl............115-118

INTERIORS

Auditoriums Allen Theater, Cleveland, O..**63, 64**
Babylon Theater, Babylon, N. Y...........418
Bay View Theater, San Francisco, Cal......428
Broadway Theater, Astoria, N. Y..........386
Broadway Theater, South Boston, Mass......**82**
Cameo Theater, New York, N. Y.............**72**
Capitol Theater, Chicago, Ill..............374, **80**
Capitol Theater, Detroit, Mich...............383
Capitol Theater, New York, N. Y......362, 378
Circle Playhouse, Annapolis, Md....... .....**68**
Curran Theater, San Francisco, Cal..........**91**
Earle Theater, Washington, D. C............368
Eastman Theater, Rochester, N. Y..........399
Fort Armstrong Theater, Rock Island, Ill....**69**
Forum Theater, Los Angeles, Cal.............**61**
Fox's Theater, Philadelphia, Pa.........378, 379
Golden Gate Theater, San Francisco, Cal.....**87**
Gordon's Capitol Theater, Allston, Mass......**77**
Gordon's Central Square Theater, Cambridge, Mass.....................**76**
Jackson Theater, Jackson Heights, N. Y....386
James Theater, Columbus, O..................**65**
Lafayette Theater, Suffern, N. Y.............**74**
Mante's Theater, Irwin, Pa..................430
Medford Theater, Medford, Mass.............432
Piccadilly Theater, New York, N. Y........400
Playhouse, Detroit, Mich......................381
Playhouse, New Canaan, Conn...............422

Premier Theater, Brooklyn, N. Y.......388
Ringling, Al., Memorial Theater, Baraboo, Wis.......**81**
Roosevelt Theater, Chicago, Ill.......**79**
Rye Theater, Rye, N. Y.......424
Stadium Theater, Brooklyn, N. Y.......385
Winema Theater, Scotia, Cal.......**92**
Banking Rooms Straus Building, Chicago, Ill. **46, 47**
Bedrooms "Stillington" Estate of Leslie Buswell, Esq., Gloucester, Mass.......308, 311, **54**
Churches Flatbush Presbyterian Church, Brooklyn, N. Y.......**52**
St. James' Church, Lake Delaware, N. Y....... **8**
Dining Rooms Allerton House, Chicago, Ill.......**60**
Barkwill, Ernest S., Cleveland, O.......**14**
Carstairs, J. H., Ardmore, Pa.......217, **50**
Congressional Country Club, Washington, D. C.......146
Glen View Club, Glen View, Ill.......**33, 34**
Grosse Pointe Country Club, Detroit, Mich..147
Gulf Stream Golf Club, Palm Beach, Fla.......**27**
Mid-Pines Country Club, Southern Pines, N. C.......145
North Jersey Country Club, Paterson, N. J.**19**
North Shore Country Club, Glen Cove, N. Y. 151
Ojai Valley Country Club, Ojai, Cal.......190
Plainfield Country Club, Plainfield, N. J.......**29**
"Stillington," Estate of Leslie Buswell, Gloucester, Mass.......308
Tucker, Carll, Mt. Kisco, N. Y.......14, **6**
Drawing Rooms Carstairs, J. C., Ardmore, Pa.......217, **50**
English Type.......37
Hartt, Dudley N., Chestnut Hill, Mass.......237
Living Room, Princeton Inn, Princeton, N. J.......72, **16**
"Stillington," Estate of Leslie Buswell, Gloucester, Mass.......310, **54**
Tucker, Carll, Mt. Kisco, N. Y.......16
Westfield, N. J. (Colonial House), Hollingsworth & Bragdon, Archts.......352
Dressing Rooms North Hills Country Club, North Glenside, Pa.......195
Exhibition Rooms Exposition of Architecture and Allied Arts, New York, N. Y.......277-282
Foyers Allen Theater, Cleveland, O.......**63**
Allerton House, Chicago, Ill.......314
Bay View Theater, San Francisco, Cal.......428
Bellevue Theater, Upper Montclair, N. J.......419
Capitol Theater, Chicago, Ill.......375
Capitol Theater, Detroit, Mich.......382, 383
Capitol Theater, New York, N. Y..363, 364, 369
Earle Theater, Washington, D. C.......367
Forum Theater, Los Angeles, Cal.......**62**
Granada Theater, San Francisco, Cal.......**90**
Jackson Theater, Jackson Heights, N. Y.......387
Grill Rooms Allerton House, Chicago, Ill.......315
Detroit Golf Club, Detroit, Mich.......147
Knickerbocker Country Club, Tenafly, N. J.192
North Jersey Country Club, Paterson, N. J..150
North Hempstead Country Club, Port Washington, N. Y.......176
Princeton, Inn, Princeton, N. J.......74
Rod & Gun Club, Dennison, Texas.......171
Halls and Corridors Beebe Memorial Library, Wakefield, Mass.......268
Cameo Theater, New York, N. Y.......**71**
Carstairs, J. H., Ardmore, Pa.......**49**
Maidstone Club, East Hampton, N. Y.......147
Plainfield Country Club, Plainfield, N. J.......146
Tucker, Carll, Mt. Kisco, N. Y.......12
Kitchens Broadmoor Country Club, Indianapolis, Ind.......205
Madison-Lakelands Golf Club, Madison, Ohio.......206
River Oaks Country Club, Houston, Texas..204
Libraries Barkwill, Ernest S., Cleveland, O.......**14**
House, New York, N. Y., Leigh French, Jr., Archt.......336
"Stillington," Estate of Leslie Buswell, Gloucester, Mass.......**55**
Tucker, Carll, Mt. Kisco, N. Y....... **6**
Living Rooms See Drawing Rooms.
Lobbies Allerton House, Chicago, Ill.......**59**
Babylon Theater, Babylon, N. Y.......417
Broadway Theater, Astoria, N. Y.......387
Cameo Theater, New York, N. Y.......**71**
Capitol Theater, St. Paul, Minn.......371, 398
Chicago, Theater, Chicago, Ill.......**75**
Golden Gate Theater, San Francisco, Cal.......**88**
Gordon's Capitol Theater, Allston, Mass.......**77**
Granada Theater, San Francisco, Cal.......**90**
New Orpheum Theater, New Orleans, La...372
Ringling, Al., Memorial Theater, Baraboo, Wis.......**81**
Roosevelt Theater, Chicago, Ill.......**78**
Tivoli Theater, Chicago, Ill.......85
World Theater, Omaha, Nebraska.......371
Locker Room North Hills Country Club, North Glenside, Pa.......193, 194
Lounges Allerton House, Chicago, Ill.314, 315, **60**
Bonnie Briar Country Club, Larchmont, N. Y.**35**
Creek Club, Locust Valley, N. Y.......151, **37**
Garden City Country Club, Garden City, N. Y.......184
Glen View Club, Glen View, Ill.......**33**
Grosse Pointe Country Club, Detroit, Mich..151
Gulf Stream Golf Club, Palm Beach, Fla.......**27**
Inwood Country Club, Inwood, N. Y.......146
Longwood Cricket Club, Chestnut Hill, Mass.178
Los Angeles Tennis Club, Los Angeles, Cal..**40**
Maidstone Club, East Hampton, N. Y....147, **24**
Mid-Pines Country Club, Southern Pines, N. C.......145
North Hills Country Club, North Glenside, Pa.......195
North Jersey Country Club, Paterson, N. J.......150, **19**
North Shore Country Club, Glen Cove, N. Y.150
Oakland Golf Club, Bayside, N. Y.......149
Ojai Valley Country Club, Ojai, Cal.......190
Plainfield Country Club, Plainfield, N. J.......**29**
Riverdale Country Club, Riverdale-on-Hudson, N. Y.......188
Rod & Gun Club, Dennison, Texas.......171
Sunningdale Country Club, Scarsdale, N. Y.152
Markets Municipal Market Building, Norfolk, Va.......305
Museums Field Museum of Natural History, Chicago, Ill.......66-68
Private Offices Straus Building, Chicago, Ill. 226, 227
Whitman, Clarence, & Sons, Inc., New York, N. Y.......**57**
Projection Room Capitol Theater, Detroit, Mich.......406
Reading Rooms Beebe Memorial Library, Wakefield, Mass.......252, 268
Bedford Branch, Brooklyn Public Library, Brooklyn, N. Y.......266
Library, American International College, Springfield, Mass.......250
Maxwell, George, Memorial Library, Rockville, Conn.......254
Memorial Library, Bound Brook, N. J.......260
Needham, Mass., Public Library.......251
Pease Memorial Library, Ridgewood, N. J..262
Rye, N. Y., Public Library.......252
Sharon, Mass., Public Library.......258
Whitinsville Library, Whitinsville, Mass.251, 256
Sun Parlor Carstairs, J. H., Ardmore, Pa.......216

ARCHITECTURAL DETAILS

Ceilings Foyer, Forum Theater, Los Angeles, Cal. (Painted).......**62**
Golden Gate Theater, San Francisco, Cal. (Fan Vaulted).......**88**
Grill Room, Allerton House, Chicago, Ill. (Painted Beamed).......315
Main Lounge, Allerton House, Chicago, Ill. (Vaulted).......315
Chancel Flatbush Presbyterian Church, Brooklyn, N. Y.......**52**
Colonnades Field Museum of Natural History, Chicago, Ill. (Classic).......**12**
Forum Theater, Los Angeles, Cal.......**62**
Doorways, Ext. Art Shop, Ridgewood, N. J. (Italian).......106
Barkwill, Ernest S., Cleveland, O. (Georgian).76
Beverly Farms Library, Beverly Farms, (Mass. (Col.).......246
Carstairs, J. H., Ardmore, Pa. (Col.).......**49**
Circle Playhouse, Annapolis, Md.......**67**
Creek Club, Locust Valley, N. Y. (Col.).......**37**
Glen View Club, Glen View, Ill. (Tudor).......**34**
House, Flushing, N. Y., Treanor & Fatio, Archts. (Col.).......338
House, Freeport, N. Y., Dwight James Baum, Archt. (Col.).......348
House, Glencoe, Ill., R. C. Hunter & Brother, Archts. (Col.).......342
House, Great Neck, N. Y., Oswald C. Hering, Archt. (Col.).......346
House, Westfield, N. J., Hollingsworth & Bragdon, Archts. (Col.).......352
Laconia High School, Laconia, N. H. (Two)..78
Los Angeles Tennis Club, Los Angeles, Cal. (Spanish).......**40**
Memorial Library, Bound Brook, N. J. (Col.).247
Needham, Mass., Public Library (Col.).......264
North Hempstead Country Club Locker Building, Port Washington, N. Y. (Col.)..182
Princeton Inn., Princeton, N. J. (Col.).......**15**
St. James' Church, Lake Delaware, N. Y. (Gothic)....... 3
Sample, J. E., Larchmont, N. Y. (Col.).......334
Shop and Office Building, Buffalo, N. Y. (It. Ren.).......120
Shop Building, Watertown, Conn. (Col.).......108
Straus Building, Chicago, Ill.......225
Tucker, Carll, Mt. Kisco, N. Y. (Tudor)....... **4**
Wilshire Country Club, Los Angeles, Cal. (Spanish) **39**
Doorways, Int. Allerton House, Chicago, Ill. (Ital.).......314
Antique Italian Door, Architectural Forum Room, Exposition of Architecture and Allied Arts 281
Field Museum of Natural History, Chicago, Ill. (Classic).......67
House, Great Neck, N. Y., Oswald C. Hering, Archt. (Col.).......346
Facades Capitol Theater, Chicago, Ill. (Detail drawing).......368
Capitol Theater, St. Paul, Minn.......365
Curran Theater, San Francisco, Cal.......**91**
Custom House, King's Lynn, Norfolk, England (Measured drawing).......320, 321
Forum Theater, Los Angeles, Cal.......**61**
Granada Theater, San Francisco, Cal.......**89**
Orpheum Theater, New Orleans, La.......366
Pittville Pump Room, Cheltenham, Gloucestershire, England (Detail drawing)....241, 243
Tivoli Theater, Chicago, Ill.......**85**
Flooring Santa Prassede, Rome (Mosaic)..17-22
Fireplaces Carstairs, J. H., Ardmore, Pa. (Col.).......218
Essex County Club, Manchester, Mass.......148
Hartt, Dudley N., Chestnut Hill, Mass.......238
House, Flushing, N. Y., Roger H. Bullard, Archt. (Col.).......350
House, New Haven, Conn., Charles G. Loring, Archt. (Col.).......340
House, New York, N. Y., Leigh French, Jr., Archt. (Col.).......336
Nassau Country Club, Glen Cove, N. Y.......148
Pittville Pump Room, Cheltenham, Gloucestershire, England (Classic).......242
Plainfield Country Club, Plainfield, N. J.......**29**
Fountains Pump Head, Pittville Pump Room, Cheltenham, Gloucestershire, England.......242
Wall Fountain, Al. Ringling Memorial Theater, Baraboo, Wis.......**81**
Garden Pools Carstairs, J. H., Ardmore, Pa.......214, 215
Estate of Alexander Van Rensselaer, Camp Hill, Fort Washington, Pa.......158
Gateways Carstairs, J. H., Ardmore, Pa.......214
"Stillington," Estate of Leslie Buswell, Gloucestershire, Mass.......307
Tom Gate, Christ Church, Oxford, England..220
Interiors—French Arsenal at Paris (Measured drawings) 269-272
Details of Small Louis XVI Salon, Compiegne (Measured drawings).......58-62
Details of a Louis XVI Salon, Palace of Fontainebleau (Measured drawings).......122-126
Salon, Hotel Senecterre, Paris (Detail drawing).......354-358
Loggias Allerton House, Chicago, Ill. (Ital.)..316
Gulf Stream Golf Club, Palm Beach, Fla.......**26**
Tucker, Carll, Mt. Kisco, N. Y....... **5**
Metal Work Balustrade (Wrought Iron) Pittville Pump Room, Cheltenham, Gloucestershire, England.......242
Mural Decoration Capitol Theater, Chicago, Ill.......374
Fort Armstrong Theater, Rock Island, Ill...392
Piccadilly Theater, New York, N. Y.......400
Roosevelt Theater, Chicago, Ill.......**78**
Stadium Theater, Brooklyn, N. Y.......387
Tivoli Theater, Chicago, Ill.......**86**
Tucker, Carll, Mt. Kisco, N. Y.......13
Orchestra Screen James Theater, Columbus, Ohio.......**66**
Organ Screens Bellevue Theater, Upper Montclair, N. J.......416, 419, 420
Fort Armstrong Theater, Rock Island, Ill.......**70**
Golden Gate Theater, San Francisco, Cal.......**88**
Gordon's Central Square Theater, Cambridge, Mass.......**76**
Palace Theater, Lawrence, Mass.......**84**
St. George Theater, Framingham, Mass.......**83**
Patios Old Elm Country Club, Fort Sheridan, Ill.......170
Porches Essex County Club, Manchester, Mass.......**21**
Flintridge Country Club, Flintridge, Cal. (Spanish) **32**
House, Perrysburg, Ohio, Alfred Hopkins, Archt. (Col.).......344
Riverdale Country Club, Riverdale-on-Hudson, N. Y. (Col.).......187
Tucker, Carll, Mt. Kisco, N. Y. (Tudor)..15, **3**
Porticoes American International College, Springfield, Mass. (Col.).......245
Creek Club, Locust Valley, N. Y. (Col.).......**37**
Field Museum of Natural History, Chicago, Ill. (Classic).......**11**
Grant Park Stadium, Chicago, Ill. (Classic) 79, 80
Pittville Pump Room, Cheltenham, Gloucestershire, England (Classic).......240
Princeton Inn, Princeton, N. J. (Col.).......**73**
Rye Theater, Rye, N. Y. (Col.).......423
Sculpture and Carving Frieze, Fort Armstrong Theater, Rock Island, Ill.......392
Frieze, Foyer, Capitol Theater, Chicago, Ill..375
Frieze, Al. Ringling Memorial Theater, Baraboo, Wis.......**81**
Overmantel, Hotel Senecterre, Paris.......353
Stages Allen Theater, Chicago, Ill.......**63**
Babylon Theater, Babylon, N. Y.......417
Bay View Theater, San Francisco, Cal.......428
Bellevue Theater, Upper Montclair, N. J.416, 420
Cameo Theater, New York, N. Y.......**72**
Capitol Theater, Chicago, Ill.......**80**
Circle Playhouse, Annapolis, Md.......**68**
Fort Armstrong Theater, Rock Island, Ill.......**69**
Fox's Theater, Philadelphia, Pa.......379
Golden Gate Theater, San Francisco, Cal.......**87**
Granada Theater, San Francisco, Cal.......**89**
James Theater, Columbus, Ohio.......**66**
Kinema Theater, Fresno, Cal.......408
Lafayette Theater, Suffern, N. Y.......**74**
Mante's Theater, Irwin, Pa.......430
Medford Theater, Medford, Mass.......431
Playhouse, New Canaan, Conn.......421
Roosevelt Theater, Chicago, Ill.......**79**
Rye Theater, Rye, N. Y.......424
Stadium Theater, Brooklyn, N. Y.......385
Tivoli Theater, Chicago, Ill.......**86**
Stairways Allerton House, Chicago, Ill. (Ital.).**59**
Barkwill, Ernest S., Cleveland, O. (Georgian).76
Capitol Theater, New York, N. Y.......364
Capitol Theater, Detroit, Mich.......382
Carstairs, J. H., Ardmore, Pa. (Curved).......**49**
Earle Theater, Washington, D. C.......367
House, New Haven, Conn., Charles G. Loring, Archt. (Col.).......340
House, Perrysburg, Ohio, Alfred Hopkins, Archt. (Col.).......344
Straus Building, Chicago, Ill.......228
Store Fronts Baltimore, Md., Este Fisher, Archt. 98
Boston, Mass., Parker, Thomas & Rice, Archts. (English).......103
French Shop Front in Metropolitan Museum, N. Y. (Louis XVI).......104
Providence, R. I., Strickland, Blodget & Law, Archts, (French) 104
Windows Casement Windows.......37-40
Straus Building, Chicago, Ill. (Stained Glass).227
Tucker, Carll, Mt. Kisco, N. Y. (Leaded Glass) **6**

Index to Illustrations According to Subject—*Continued*

FORUM STUDIES OF EUROPEAN PRECEDENTS

Dijon—Church of Notre Dame..................*41*
Church of Notre Dame—Entrance Detail......*42*
Hotel de Ville, Detail—Court Facade.........*35*
Hotel de Ville, Doorway in Court............*34*
Hotel de Ville, Louis XV Wing...............*33*
Hotel de Ville, Staircase, Musee............*36*
Hotel de Vogue, Detail of Wing..............*37*
Hotel de Vogue, Detail of Wing..............*39*
No. 22 Rue de la Prefecture.................*47*
No. 36 Rue de la Prefecture.................*48*
No. 37 Rue Verrene, Court Entrance..........*40*
No. 41 Rue de la Prefecture.................*46*
No. 58 Rue de la Prefecture.................*45*
Old House Opposite Church of Notre Dame..*38*
Place des Ducs, Circular Corner Bay........*44*
Street Front.................................*43*
Farmhouse at Les Travers, near Nice (Two views)...........................*19, 20*
Farmhouse at Migliarino.....................*24*
Farmhouse at Molina di Quosa, near Lucca..*23*
Farmyard near Bahas, France (Two views)*21, 22*
Old Wine Mill at Les Travers, near Nice.......*18*
Palace of Fontainebleau—Center Pavilion of the Left Wing Built by Francis I..........*25*
Corner Pavilion from the Alley between Palace and Stables.............................*28*
Detail of Henry IV Pavilion facing the Carp Pond.......................................*29*
Detail of Trinity Chapel Built by Francis I.*27*
Exterior Staircase facing the Court of Fountains built by Henry IV....................*31*
Facade of the Stables from the Highway.....*30*
Henry IV rangery in the Court of Fountains.......................................*32*
One of the Corner Pavilions Built by Henry IV...*26*
View Through Arch of Old Mill at Les Travers, near Nice.........................*17*

Index to Articles According to Subject

A. I. A. & Chapters *Convention, Fifty-Eighth Annual.......................................278
Architecture *Architecture of Country Clubs, The, Roger H. Bullard......................133
*Architecture of the Small Shop, The. Part I. Design Derived from Period Precedent......97
*English Cottage Type Dwelling, The, Leland Hubbell Lyon...............................33
*Interior Architecture of the Country Club..145
*St. Paul's Controversy, The, A. R. Powys..297
*Six Modern Bank Buildings..................299
*Smaller Civil Architecture of England, The, Roger Wearne Ramsdell and Harold Donaldson Eberlein.
  Part IV. Pittville Pump Room, Cheltenham, Gloucestershire, Eng...239
  Part V. Custom House, King's Lyon, Norfolk, England 317
*Small Houses in the Colonial Style, Henry B. Humphrey..............................329
*Some Minor Charleston Houses, Albert Simons 81
*Work of Thomas W. Lamb, Architect, The.377
Associations American Construction Council—Program of Spring Meeting, April..........49
Building Costs Building Labor Productivity and Costs, C. Stanley Taylor...............29
Building Situation.... ....27, 92, 229, 324
Building Economics Building Labor Productivity and Costs, C. Stanley Taylor........29
Building Situation.................27, 92, 229, 324
Forecast of 1925 Building Activity, C. Stanley Taylor.....................................89
Important Principles of Architectural Economics, James M. Green, Jr. Part I. Preliminary Investigation before Planning a New Building.................................325
Review of Building Activity During 1924, A., C. Stanley Taylor.........................23
Buildings, Description of *Chicago Allerton House, The, Palmer H. Ogden.............313
*Description of the Capitol Theater, Chicago, A 373
*Field Museum of Natural History, Chicago, The, C. F. Murphy..........................65
*Flatbush Presbyterian Church, The.........221
*Grant Park Stadium, The, Chicago, Ill.....79
*Greek Revival Capitol at Columbus, Ohio, The, Thomas E. O'Donnell................ 5
*Laconia High School, The, Laconia, N. H...77
*Municipal Market Building, Norfolk, Va...305
*Princeton Inn, Princeton, N. J...............69
*St. James' Church, Lake Delaware, N. Y.... 1
*Straus Building, The, Chicago, Ill., Leo J. Sheridan and W. C. Clark.................225
City Planning International City and Regional Planning Conference, The, Charles Downing Lay 283
Village Planning.........................June 53
Clubs *Architecture of Country Clubs, The, Roger H. Bullard.........................133
*Developing the Country Club Plan, Clifford C. Wendehack...............................139
*Evolution of the Golf Club House in America, The, J. Lewis Brown......................131
*Financing and Operating the Golf Club, C. Stanley Taylor............................165
*Furnishing and Decoration of a Country Club, The, Barnet Phillips................149
*Golf Club Water Supply, Duncan Shaw....199
*Interior Architecture of the Country Club..145
*Locker Room Planning and Equipment, Philip S. Tyre.................................193
*Planning for Food Service, Albert E. Merrill 203
*Sewage Disposal for Isolated Golf Clubs, A. E. Hansen..............................207
*Small Country Club, The, Its Requirements and Plan, Aymar Embury, II.............169
*Swimming Pools for Country Clubs, Charles Downing Lay 157
Ventilation of Locker Rooms, The, James H. Ritchie 197
*What the Golfer Wants in His Club, Grantland Rice.....................................129
Competitions American Academy in Rome Annual Competitions for Fellowships in Architecture, Painting, Sculpture, Musical Composition and Classical Studies.........Jan. 41
A. I. A. Competition. Device calling attention to Octagon House and furnishing information regarding architecture and history of the country..............................Feb. 41
Prizes Awarded by School of Architecture of Princeton University..................Mar. 49
*Small Structolite Concrete Houses and Bungalows. Report of Jury of Award..........289
Concrete Economy in Concrete Forms, E. F. Rockwood..31
Construction Some Structural Features of Theaters, Henry Ahrens.....................407
Conventions 58th Annual A. I. A..............278
Design *An Architect's Impressions of Oxford, Harold Field Kellogg........................219
*Architecture of Country Clubs, The, Roger H. Bullard...................................133
*Architecture of the Small Shop, The, Part I. Design Derived from Period Precedent...97
*Arsenal at Paris, The, C. Hamilton Preston.269
*Casement Windows for the English Cottage.37
*Colonial Details, Joseph F. Higgins.........335
*Design and Craftsmanship in Early American Silver, Edwin J. Hipkiss, Part I......359
*Design of Theater Projection Rooms, The, J. H. Kurlander 403
*Details of a Louis XVI Salon at Fontainebleau 121
*Details of Small Louis XVI Salon, Compiegne 57
*Developing the Country Club Plan, Clifford C. Wendehack 133
*English Cottage Type Dwelling, The, Leland Hubbell Lyon 33
*French Furniture—Some Notes on, Pierre Dutel 273
*Furnishing and Decoration of a Country Club, The, Barnet Phillips..................149
*Greek Revival Capitol at Columbus, Ohio, The, Thomas E. O'Donnell..................5
*Hotel Senecterre, Paris, C. Hamilton Preston 353
*House, Ernest S. Barkwill, Cleveland, O....75
*House, J. H. Carstairs, Ardmore, Pa......213
*House, Dudley N. Hartt, Chestnut Hill, Mass., Chester L. Churchill................235
*House, Carll Tucker, Mt. Kisco, N. Y.......9
*Interior Architecture of the Country Club..145
*Library Shelving and Interiors, John Adams Lowe 249
*Locker Room Planning and Equipment, Philip S. Tyre 193
*On the Designing of Small Libraries, Chalmers Hadley 245
*Planning of the Motion Picture Theater, The 385
*Present Tendencies in the Design of Theater Facades, Kenneth Franzheim..............365
*St. James' Church, Lake Delaware, N. Y., John Taylor Boyd, Jr.........................1
*Six Modern Bank Buildings................299
*Small Country Club—The, Its Requirements and Plan, Aymar Embury II.............169
*Small Houses in the Colonial Style, Henry B. Humphrey 329
*Small Motion Picture, The, J. H. Phillips..411
*Small Shop Display Windows..............103
*Some Minor Charleston Houses, Albert Simons 81
*Stage Layout and Equipment, Edward H. Kearney 409
*"Stillington," Estate of Leslie Buswell, Gloucester, Mass., Harold Stark...........307
*Tables, Several Types of French, Carroll Bill 127
*Tables, Some English Types.................63
*Theater Entrances and Lobbies, E. C. A. Bullock 369
*Use of Indian Motifs in Theater Decoration, Mary A. Rolfe 391
Education American Academy in Rome Annual Competitions for Fellowships.........Jan. 41
European Tour (Auspices of Bureau of University Travel) ....Feb. 41
London Sûrvey Committee ....Jan. 41
Princeton University School of Architecture Competitions ....Mar. 49
Rotch Traveling Scholarship ....Apr. 49
Electrical *Illuminating the Exteriors of Buildings, Bassett Jones 93
*Power and Heating Plants, The Generating Plant: Boilers, J. J. Cosgrove.............231
Question of Lighting—The, I. J. Lichter....389
Engineering Concrete Forms—Economy in, E. F. Rockwood 31
*Golf Club Water Supply, Duncan Shaw....199
*Illuminating the Exteriors of Buildings, Bassett Jones 93
*Power and Heating Plants, The Generating Plant: Boilers, J. J. Cosgrove.............231
Question of Lighting, The, I. J. Lichter.....389
*Sewage Disposal for Isolated Golf Clubs, A. E. Hansen 207
Some Structural Features of Theaters, Henry Ahrens 407
Ventilating and Cooling of Motion Picture Theaters, D. D. Kimball.......................393
*Ventilation of Locker Rooms, The, James H. Ritchie 197
Expositions *Exposition of Architecture and Allied Arts, John Taylor Boyd, Jr........277
Exhibits from Schools, Exposition of Architecture and Allied Arts.............May 55
Financing *Financing and Operating the Golf Club, C. Stanley Taylor.....................165
Heating Cost of Heating Office Buildings, The, Samuel M. Green Co..................323
*Power and Heating Plants, The Generating Plant: Boilers, J. J. Cosgrove..............231
Labor Building Labor Productivity and Costs, C. Stanley Taylor.............................29
Landscape Architecture *Landscaping a Golf Course, Devereux Emmet...................153
*Municipal Golf Courses—Those in the Chicago District and Elsewhere, Howell Taylor and Theodore J. Moreau.....................161
*Planning the Golf Course, A. W. Tillinghast 159
Materials *Mosaic Flooring of Santa Prassede, Rome, The, Alfred Mausolff................17
Tiles for Hospital Use ....May 55
Obituaries Barber, Donn, Benjamin W. Morris ....**June**
Brunner, Arnold W. ....Mar. 49
Trowbridge, S. Breck Parkman..........Feb. 41
Theaters *Description of the Capitol Theater, Chicago, A....................................373
*Design of Theater Projection Rooms, The, J. H. Kurlander 403
*Observations on Motion Picture Theaters, C. Howard Crane 381
Organ Installations in Theaters, Robert E. Hall 401
*Planning of the Motion Picture Theater, The 385
*Present Tendencies in the Design of Theater Facades, Kenneth Franzheim 365
Question of Lighting, The, I. J. Lichter.....389
*Small Motion Picture Theater, The, J. H. Phillips 411
Some Structural Features of Theaters, Henry Ahrens 407
*Stage Layout and Equipment, Edward H. Kearney 409
*Theater Entrances and Lobbies, E. C. A. Bullock 369
*Use of Indian Motifs in Theater Decoration, Mary A. Rolfe 391
Ventilating and Cooling of Motion Picture Theaters, D. D. Kimball....................393
*What the Public Wants in the Picture Theater, Samuel L. Rothafel 362
*Work of Thomas W. Lamb, Architect, The 377
Ventilation Ventilating and Cooling of Motion Picture Theaters, D. D. Kimball...........393
*Ventilation of Locker Rooms, The, James H. Ritchie 197

Index to Illustrations According to Architect

A
Allen & Collens, (Harold B. Willis, Associated) "Stillington," Estate of Leslie Buswell, Gloucester, Mass., ex. in. pl. 307-312, **53-55**
Avery, Philip S., Laconia High School, Laconia, N. H., ex. pl. 77, 78
B
Baum, Dwight James, House, Freeport, N. Y., ex. pl. 347, 348
Riverdale Country Club, Riverdale-on-Hudson, N. Y., ex. in. pl. 187, 188
Bedell, Albert Marten, Small Art Shop at Ridgewood, N. J., ex. in. pl. 105, 106
Pease Memorial Library, Ridgewood, N. J., ex. in. pl. (Henry Barrett Crosby, Associated) 261, 262
Bergstrom, Edwin, California Yacht Club, Los Angeles, Cal., ex. pl. 174, 175
Bessell, Wesley Sherwood, Locker Building, North Hempstead Country Club, Port Washington, N. Y., ex. pl. 181, 182
Grill Room, North Hempstead Country Club, Port Washington, N. Y., in. 176
Blackall, Clapp & Whittemore, Broadway Theater, South Boston, Mass., ex. in. pl....**82**
Palace Theater, Lawrence, Mass., ex. in. pl..**84**
St. George Theater, Framingham, Mass.....**83**
Borgmeyer, Edward J., Forum Theater, Los Angeles, Cal., ex. in. pl. **61, 62**

- Bowman, Lewis, Stucco Cottage at Bronxville, N. Y., ex. in. pl. 55, 56
- Braun, W. T., (See Cervin & Horn)
- Bullard, Roger H., Colonial House, Flushing, N. Y., ex. in. pl. 349, 350
  - House, Frederick R. Kneeland, Flushing, N. Y., ex. pl. 330
  - Maidstone Club, East Hampton, N. Y., ex. in. pl. 133, 147, **22-24**
  - Oakland Golf Club, Bayside, N. Y., ex. in. .... Frontis., March, 149, 167
- Plainfield Country Club, Plainfield, N. J., ex. in. pl. 134, 138, 146, **28, 29**

C

- Cervin & Horn, Fort Armstrong Theater, Rock Island, Ill., ex. in. pl. (W. T. Braun, Associate) 392, **69, 70**
- Chambers, H. C., (See Myron Hunt)
- Cram & Ferguson, Beebe Memorial Library, Wakefield, Mass., ex. in. pl. 252, 267, 268
  - St. James' Church, Lake Delaware, N. Y., ex. in. pl. 2-4, **7, 8**
- Crane, C. Howard, Allen Theater, Cleveland, Ohio, in. pl. **63, 64**
  - Capitol Theater, Detroit, Mich., in.. 382, 383, 406
  - Playhouse, Detroit, Mich., in. 381, 382
  - Earle Theater, Washington, D. C., in. (Kenneth Franzheim, Associated) 367, 368
  - James Theater, Columbus, O., ex. in. pl. (Kenneth Franzheim, Associated) **65, 66**
  - Roosevelt Theater, Chicago, Ill., ex. in. pl. (Kenneth Franzheim, Associated) Frontis., June **78, 79**
  - World Theater, Omaha, Neb., ex. in. (Kenneth Franzheim, Associated) 367, 371
- Crosby, Henry Barrett (See Albert Marten Bedell)

D

- Davis, McGrath & Kiessling, Mamaroneck, N. Y., Proposed Motion Picture Theater, ex. 415
  - Playhouse, New Canaan, Conn., ex. in. pl. 421, 422
- Delano & Aldrich, Study for Round Hill Club, Greenwich, Conn., ex. 130
- Dennison & Hirons, Citizens' National Bank, Waynesburg, Pa., ex. pl. 301
  - Essex County Trust Company, East Orange, N. J., ex. pl. 302
  - First National Bank, Blairsville, Pa., ex. pl. 300
  - Rye National Bank, Rye, N. Y., ex. pl. 304
  - Trenton Banking Co., Trenton, N. J., ex. pl. 299
  - Union Market National Bank, Watertown, Mass., ex. pl. 303
- De Rosa, Eugene, Cameo Theater, New York, N. Y., in. pl. **71, 72**
  - Lafayette Theater, Suffern, N. Y., ex. in. pl. **73, 74**
- Dow, Joy Wheeler, Shop Building in Dutch Style, South Orange, N. J., ex. 97
- Dyer, M. A., Medford Theater, Medford, Mass., ex. in. 431, 432

E

- Eberson, John, Capitol Theater, Chicago, Ill., ex. in. pl. 368, 374, 375, **80**
- Ellington, Douglas O., Mante's Theater, Irwin, Pa., ex. in. pl. 429, 430
- Embury, Aymar II, Bellport Memorial Library, Bellport, N. Y., ex. 246
  - Combination Lounge & Dining Room, Mid-Pines Country Club, Southern Pines, N. C., in. 145
  - Knickerbocker Country Club, Tenafly, N. J., ex. in. pl. 191, 192
  - Motion Picture Theater, Pinehurst, N. C., ex. pl. 425, 426
  - Proposed Group of Shop Buildings, Southern Pines, N. C., ex. 98
  - Shop Building at Knoxville, Tenn., ex. 99
  - Shop Buildings at Pinehurst, N. C. (Two) ex. 101, 113
  - Small Shops at Englewood, N. J. (Two) ex. 102, 114
  - Southern Pines Country Club, Southern Pines, N. C., ex. pl. 179, 180

F

- Fisher, Este, Shop Front in Baltimore, ex. 98
  - Shops, Baltimore, ex. 101
- Forster, Frank J., Studio Cottage at South Norwalk, Conn., ex. in. pl. 47, 48
- Franzheim, Kenneth (See C. Howard Crane)
- French, Leigh, Jr., Library, New York House, in. 336
- Frost & Granger, Midlothian Country Club, Chicago, Ill., ex. pl. **38**
- Fugard & Knapp (See Murgatroyd & Ogden)
- Fulton & Taylor, Sleepy Hollow Country Club, Brecksville, O., ex. in. pl. 185, 186

G

- Glyce & Rolf, Rod & Gun Club, Dennison, Texas, ex. in. pl. 171
- Gordon, Kenneth A., Detail from "Tudor Shops," Pasadena, Cal., ex. 100
- Gordon & Kaelber, Eastman Theater, Rochester, N. Y., ex. in. pl. 366, 399
- Graham, Anderson, Probst & White, Field Museum of Natural History, Chicago, Ill., ex. in. pl. 65-68, **11, 12**
  - Straus Building, Chicago, Ill., ex. in. pl. 225-228, **45-47**
- Green, Edward B & Sons, Shop and Office Building in Buffalo, N. Y., ex. pl. 119-120
- Gregory, Julius, House at Riverdale, N. Y. (English Type), ex. in. pl. 33-35, 43, 44
  - Stone Cottage at Riverdale, N. Y., ex. pl.. 49, 50

H

- Hannaford, John, Entrance Detail, Ottawa Country Club, Ottawa, Ill., ex. 169
- Haven & Hoyt (See Lyman Sise)
- Helme & Corbett, Bush Terminal Building, N. Y., ex. 93
- Hering, Oswald C., Stucco House in Colonial Style, Great Neck, N. Y., ex. in pl. 345, 346
- Holabird & Roche, Grant Park Stadium, Chicago, Ill., ex. 79, 80, **9, 10**
  - Glen View Club, Glen View, Ill., ex. in. pl. **33, 34**
- Hollingsworth & Bragdon, House, Charles H. Bush, Cranford, N. J., ex. pl. 331
  - House, Westfield, N. J. (Colonial), ex. in. pl. 351, 352
- Hopkins, Alfred, Colonial House, Perrysburg, O., ex. in. pl. 343, 344
- Hopkins, Henry P., Circle Playhouse, Annapolis, Md., ex. in. pl. **67, 68**
- Hunt, Jarvis, Chicago Golf Club, Wheaton, Ill., ex. 136
- Hunt, Myron, Flintridge Country Club,, Flintridge, Cal., ex. pl. (H. C. Chambers, Associated) **31, 32**
- Hunt & Burns, Los Angeles Tennis Club, Los Angeles, Cal., ex. in. pl. **40**
  - Wilshire Country Club, Los Angeles, Cal., ex. in. pl. **39, 40**
- Hunter, R. C. & Brother, Colonial Cottage, Glencoe, Ill., ex. pl. 341, 342
  - Gate Lodge at Cincinnati, O., ex. pl. 51, 52
- Hutchins & French, Block of Shops at Falmouth, Mass., ex. pl. 111, 112

J

- Jacobs, Alfred Henry, Curran Theater, San Francisco, Cal., ex. in. pl. **91**
  - Granada Theater, San Francisco, Cal., ex. in. pl. **89, 90**
  - Winema Theater, Scotia, Cal., ex. in. pl. **92**
- Jardine, Hill & Murdock, Memorial Library, Bound Brook, N. J., ex. in. pl. 247, 259, 260
- Johnson, Reginald D., Annandale Golf Club, Annandale, Cal., ex. pl. 173
- Julien, Philip M., Congressional Country Club, Washington, D. C., ex. in. 132, 146

K

- Kahn, Albert, Dining Room, Grosse Pointe Country Club, Detroit, Mich., in. 147
  - Grill Room, Detroit Golf Club, Detroit, Mich., in. 147
  - Living Room, Grosse Pointe Country Club, Detroit, Mich., in. 151
- Kellogg, Harold Field, Pencil Sketches of Oxford, England 220, **41-44**
- King, Beverly S., Carnegie Public Library, Perry, N. Y., ex. pl. 248
- Kirkham & Parlett, Library, American International College, Springfield, Mass., ex., in. 245, 250
- Kohn, Robert D., Living Room, Sunningdale Country Club, Scarsdale, N. Y., in. 152

L

- Lamb, Thomas W., Capitol Theater, N. Y., in. 362-364, 369, 378
  - Fox's Theater, Philadelphia, Pa., ex. in.. 377-380
- Lansburgh, G. Albert, Golden Gate Theater, San Francisco, Cal., ex. in. pl. **87, 88**
  - Kinema Theater, Fresno, Cal., in. 408
  - Orpheum Theater, New Orleans, La., ex. in. 366, 372
- Lay, Charles Downing (Landscape Archt.), Pool, Loggia and Dressing Rooms, Estate of Alexander Van Rensselaer, Camp Hill, Fort Washington, Pa 158
- Leeming, Charles A., Nassau Country Club, Glen Cove, N. Y., ex. in. 137, 148
- Leland, Joseph D., (See Charles G. Loring)
- Lescher, Kibbey & Mahoney, Phoenix Country Club, Phoenix, Ariz., ex. pl. 172
- Litchfield, Electus D. & Rogers, Shop Building in Colonial Style, Watertown, Conn., ex. pl. 107, 108
  - Six-Store Building at Yorkship Village, N. J., ex. pl. 115, 116
  - Two Shops at Yorkship Village, N. J., ex pl. 117, 118
- Lord & Hewlett, Bedford Branch, Brooklyn Public Library, Brooklyn, N. Y., ex. in. pl. 265, 266
  - Somerset Hills Country Club, Bernardsville, N. J., ex. 134
- Loring, Charles G., Brick Colonial House, New Haven, Conn., ex. in. pl. 339, 340
  - Details, Beverly Farms Library, Beverly Farms, Mass., ex. (Joseph D. Leland, Associate) 246
  - Walter Hines Page Library, Huntington, N. Y., ex. in. 247, 249
- Lowell, Guy, Living Room, Piping Rock Club, in. 146
- Lyon, Leland Hubbell, House at New Rochelle, N. Y., (English Cottage Type), ex. in. pl. 34, 41, 42

M

- Marshall & Fox, Old Elm Country Club, Fort Sheridan, Ill., ex. in. pl. 170
- Mitchell, Benjamin F., Municipal Market Building, Norfolk, Va., ex. in. pl. 305, 306
- Mizner, Addison, Gulf Stream Golf Club, Palm Beach, Fla., ex. in. pl. **25-27**
- Mowll & Rand, Gordon's Capitol Theater, Allston, Mass., in. pl. **77**
  - Gordon's Central Square Theater, Cambridge, Mass., in. pl. **76**
- Murgatroyd & Ogden, Allerton House, Chicago, Ill., ex. in. pl (Fugard & Knapp, Associated) 313-316, **58-60**

N

- Neff, Wallace, Ojai Valley Country Club, Ojai, Cal., ex. in. pl. 189, 190
- Nelson, Francis, Block of English Shops at Upper Montclair, N. J., ex. pl. 109, 110

P

- Parker, Thomas & Rice, Essex County Club, Manchester, Mass., ex. in. pl. 148, **20, 21**
- Patterson-King Corporation, Colonial House, Great Neck, N. Y., ex. 333, 334
  - House, J. E. Sample, Larchmont, N. Y., ex. pl. 332, 334
- Phillips, J. H., Babylon Theater, Babylon, N. Y., ex. in. pl. 417, 418
  - Bellevue Theater, Upper Montclair, N J.., ex. in. pl. 411, 416, 419, 420
  - Elevation, Longitudinal Section and Plans of Motion Picture Theater for Small Town 414
  - Preliminary Studies for Small Motion Picture Theater in Greek Style 412, 413
- Platt, Charles A., George Maxwell Memorial Library, Rockville, Conn., ex. in. pl. 253, 254
- Pope, John Russell, Office of, House, J. H. Carstairs, Ardmore, Pa., ex. in. pl. 214-218, **48-50**
- Post, George B. & Sons, Morris County Golf Club, Convent, N. J., ex. 135
- Putnam & Cox, Longwood Cricket Club, Chestnut Hill, Mass., ex. in. pl. 177, 178

R

- Rapp, C. W. and George L., Capitol Theater, St. Paul, Minn., ex. in. 365, 371, 398
  - Chicago Theater, Chicago, Ill., ex. in. pl. 370, **75**
  - Al. Ringling Memorial Theater, Baraboo, Wis., in. pl. **81**
  - Tivoli Theater, Chicago, Ill., ex. in. pl. **85, 86**
- Richardson, Barott & Richardson, House, Dud-N. Hartt, Chestnut Hill, Mass., ex. in pl. 235-238
- Ritchie, Parsons & Taylor, Public Library, Needham, Mass., ex. in pl. 249, 251, 263, 264

S

- Sandblom, Charles A., Auditorium, Broadway Theater, Brooklyn, N. Y., in. 385, 387
  - Auditorium, Jackson Theater, Jackson Heights, N. Y., in. 386, 387
  - Auditorium, Premier Theater, Brooklyn, N. Y., in. 388
  - Auditorium, Stadium Theater, Brooklyn, N. Y., in. 385, 387
- Sanger, Prentice, English Cottage at Fitchburg, Mass., ex. pl. 45, 46
- Schloss, Newton L., Piccadilly Theater, New York, N. Y., in pl. (Joseph Orlando, Associated) 400
- Schneider, Charles S., House, Ernest S. Barkwill, Cleveland, O., ex. in. pl. 75, 76 **13, 14**
- Sise, Lyman, Pinehurst Golf Club, Pinehurst, N. C., ex. (Haven & Hoyt, Associated) 135
- Smith, Morrell, Garden City Country Club, Garden City, N. Y., ex. in. pl. 183, 184
  - Main Lounge, Inwood Country Club, Inwood, N. Y., in. 146
- Stahlberg, G. F. (See Charles F. Strothoff)
- Strickland, Blodget & Law, Shop Front in French Style, Providence, R. I., ex. 104
- Strothoff, Charles F., Bay View Theater, San Francisco, Cal., ex. in. pl. (G. F. Stahlberg, Associated) 427, 428
- Sturgis, R. Clipston, Whitinsville Library, Whitinsville, Mass., ex. in. pl. 251, 255, 256

T

- Tachau & Vought, Lounge, Dining Room, North Shore Country Club, Glen Cove, N. Y., in. 150, 151
- Thomas, Andrew J., Princeton Inn., Princeton, N. J., ex. in. pl. 69-74, **15, 16**
- Treanor & Fatio, Colonial House, Flushing, N. Y., ex. pl. 337, 338
  - Office Building for Clarence Whitman & Sons, Inc., New York, N. Y., ex. in. pl.. **56, 57**
- Trowbridge & Livingston, Bonnie Briar Country Club, Larchmont, N. Y., ex. in. pl.. 196, **35**
- Tuttle, Bloodgood, English Cottage at Pelham, N. Y., ex. in. pl. 53, 54
- Tyre, Philip S., Main Locker Room, Lounge, Dressing Room, North Hills Country Club, North Glenside, Pa., in pl. 193-195

U

- Upjohn, Hobart B., Flatbush Presbyterian Church, Brooklyn, N. Y., ex. in. pl. 221-225, **51, 52**
  - Entrance Hall, Public Library, Rye, N. Y., in. 252

W

- Walker, C. Howard, Public Library, Sharon, Mass., ex. in. pl. 257, 258
- Walker, Henry Leslie, Rye Theater, Rye, N. Y., ex. in. pl. 423, 424
- Walker & Gillette, Creek Club, Locust Valley, N. Y., ex. in. pl. 151, **36, 37**
  - House, Carll Tucker, Mt. Kisco, N. Y., ex. in. pl. .... Frontis., Jan. 9-16, **1-6**
- Warren & Wetmore, Locker House, Westchester-Biltmore Country Club, Rye, N. Y., ex. 196
  - Mid-Ocean Golf Club, Hamilton, Bermuda, ex. 136
  - Westchester-Biltmore Country Club, Rye, N. Y., ex. 132
- Wendehack, Clifford C., Clearview Golf and Yacht Club, Bayside, N. Y., ex. pl. 143
  - Ferncliff Country Club, West Caldwell, N. J., ex. pl. 144
  - North Jersey Country Club, Paterson, N. J., ex. in. pl. 150, **17-19**
  - Phelps Manor Country Club, Englewood-Teaneck, N. J., ex. pl. 140
  - Tokeneke Country Club, Tokeneke, Conn., ex. pl. 142
  - Winged Foot Golf Club, Mamaroneck, N. Y., ex. pl. 141, **30**

BOOK DEPARTMENT

Making the Most of the Garden

A Review by ROBERT WHEELWRIGHT

Professor of Landscape Architecture, University of Pennsylvania

"IF I have neglected entirely the subject of bugs and diseases in this book," * * * * so starts the preface in Mr. Lay's "Garden Book," presaging something different from the usual. I almost regret that he didn't omit plant lists also, as great a pest in garden books as bugs in gardens, for I do not feel that the book would have suffered without such lists, and by such reduction in bulk there might have been a like reduction in price. The advantage would have been less chance of delay in its purchase, a matter that most assuredly should not involve any great hesitation.

Tulips and Wistaria in a Walled Garden

Illustration from "A Garden Book for Autumn and Winter"

Have you ever read Charles Van Dyke's "Nature for Its Own Sake"? I felt at times as if this were a companion book, for there appears a sympathy of attitude toward nature that brought Mr. Van Dyke's book to my mind, a poetic appreciation and expression all too rarely present in garden books of today.

Especially valuable because of the stress laid on design, every amateur of gardens will profit by the reading of Mr. Lay's book, though they may, like myself, find an occasional point of disagreement. One which cannot be overlooked is the statement that "there was a tendency in the past to emphasize usefulness too much in garden design,—to say that perfect adaptation to *use was a determining cause of the beauty* of the (clipper) ship or of anything which showed such perfect adaptation." What was said, if recollection serves me rightly, was that "completeness of physical organization *to serve economic needs* (of man) produces æsthetic pleasure," which excludes the example he introduces to disprove this theory:—the hippopotamus, (which is comical enough as we see him, but nevertheless might be an object of beauty in his native haunts. Perhaps overemphasis in the past *has* been placed on usefulness, but I should rather say utility, for has not æsthetic pleasure its usefulness? What more important than necessary pleasure?

As the reader continues he will find statements appearing that make him stop and think, with doubts perhaps, as this specific statement brought to me, but *he will think.* This fact alone makes Mr. Lay's book one of unusual merit, for we certainly benefit more from reading matter that causes us to think, than from a mere recalling of ideas or facts. In the ordinary giving of facts also I find a distinctive treatment; for example, in the chapter entitled "Preparing for Winter," we do not find the usual cut and dried directions, but rather a pleasant giving of a list of duties to be done, stimulating thought rather than specifying action appropriate to the season.

I should not fail to speak of the importance of Mr. Lay's remarks on some of our native trees and shrubs, in which he strengthens his appeal for their wider use by appreciative descriptions that are bound to stimulate popular interest, especially in the unappreciated beauty of our deciduous trees in winter. The uninteresting autumnal color of many European trees, as compared with the brilliant coloring of some of our natives, should certainly affect us in our selection. Though Mr. Lay cites the example of seeing a Virginia Creeper in England, I wonder if all our plants that turn to yellow and scarlet would retain that characteristic when grown in a land of different climatic conditions. It would seem not at all unlikely, when we find the reverse to be true and a lack of brilliance in European trees grown here. Still, I suspect that climatic conditions are partially responsible, and that autumn in Europe would not bring so hearty a response in color as comes annually in America.

The fallacy, or to quote, "the sentimental obsession," of planting trees in such a way that permits full development of each as an individual, the danger of planting too many varieties, and the "promiscuous planting of specimen evergreens," are among matters treated in the chapter entitled "Autumn Color; Trees," while "Work on the Trees" would be admirable preparatory reading for the man who is considering the employment of the services of a tree doctor, services which are often necessary.

How much truth lies in Mr. Lay's statement that talk of "the joy of working in the garden is subterfuge, and that the real reason is that we thereby gain for ourselves all the satisfaction of managing the garden and the fun of determining how and when everything shall be done!" With some this may not be true, but I must acknowledge its truth so far as I am concerned, and so would many.

In addition to the chapters specifically alluded to, I would commend especially those entitled "The Garden Itself"; "Style and Expression"; "The Woods and Thickets in Winter," and "The Spirit of the Landscape."

A GARDEN BOOK FOR AUTUMN AND WINTER. By Charles Downing Lay, 303 pp., 6¾ x 8½ ins. Illustrated. Price $4 net. Duffield & Co., 211 East 19th Street, New York.

Any book reviewed may be obtained at published price from The Architectural Forum

Spanish Details

A Highly Practical Work on the Spanish Renaissance

By William Lawrence Bottomley

IN this volume there is presented a collection of illustrations and measured drawings of carefully selected details of Spanish Renaissance architecture. The work of a New York architect who has been notably successful in attractive use of Spanish motifs in his own practice, the volume presents not so much work of a striking and magnificent character as what is comparatively moderate in scale and therefore adaptable for present-day use in America.

The volume is replete with illustrations of well chosen, simple Spanish facades, doorways, windows, balconies, balustrades, exterior stairways and the grilles of wrought iron or carved and turned wood which are used at gates, windows and doorways. Interior details include the arcades of patios, ceilings, chimneypieces, floors, doors, shutters, wall fountains, etc., and since in most instances the illustrations are accompanied by measured drawings the reproduction of these details is not difficult.

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ECONOMY IN HOME BUILDING. By Oswald C. Hering, 210 pp., 7 x 10 ins. Price $5 net. Robert M. McBride & Co., 7 West 16th Street, New York.

BUILDING before the beginning of the World War period now seems to have been characterized by considerable carelessness and much reckless disregard of economy; it has required conditions such as have prevailed during the past few years and prevail today to focus the attention of architects, builders, and home owners themselves upon means by which there may be secured the maximum in economical building;—upon a really effective scrutiny of the matter and discovery of methods by which the utmost may be had from a building appropriation.

Much of the progress which has been made in this direction is due to the publication of a number of excellent works upon the subject, of which this volume by Mr. Hering is among the most useful. Probably because his domestic work (always good in itself) has always been characterized by practical economy, his study upon what might be termed "intensive economy" in building comes with authority and force. The work, the introduction says, is "for the purpose of telling the home builder and the inexperienced young architect how attractive and economical homes may be designed and built," and all this it will undoubtedly do. A valuable chapter deals with the important matter of alterations.

THE ARCHITECTS' LAW MANUAL. By Clinton H. Blake, Jr. 25 pp., 6 x 9 ins. Price $5. The Pencil Points Press, 19 East 24th Street, New York.

ARCHITECTURE presents countless points of contact with other professions and with business which make necessary the observance of certain laws. In fact architecture itself, while ranking as a profession, is in one sense also a business which maintains relations with clients and with national, state or municipal governments and possesses wide ramifications into fields where dealings with contractors and subcontractors of every kind are necessary. At every step an architect must be quite sure of his ground and of his relations to his clients, as well as to the many individuals with whom he sustains relations either upon his own account or upon that of his clients. Architectural law, indeed, is developing into a department of law all its own, and like admiralty law or real estate law, with which it has much in common, it is being classified, systematized and tabulated. Along with the development of architectural law there is growing up a body of men devoted primarily to its practice, and Mr. Blake, who has made a successful study and practice of this branch of legal effort and has lectured widely regarding it, here sets forth some of its principles.

The broad scope of the work might be best indicated by giving the headings of some few of its chapters:

The Business Side of Architecture.
Contract Between Architect and Client.
Contract Between Owner and Contractor.
Representations or Guarantees With Respect to Costs.
Acting as Contractor or Principal.
Sketches and Plans.
The Title to the Plans.
Supervision.
Competitions.
The Lien of the Architect.
Dealing With Corporations and With the Government.

HOUSING PROGRESS IN WESTERN EUROPE. By Edith Elmer Wood. 210 pp., 5½ x 8 ins. Illustrated. Price $3. E. P. Dutton & Co., 581 Fifth Avenue, New York.

THERE are many reasons why the question of what is broadly termed "housing" is coming more and more to the fore. Social workers realized long ago that there exists a definite relation between an individual's living conditions and his value as a citizen, between his physical health and his efficiency as a workman; and public opinion was startled and appalled at results which surveys in European countries as well as in America revealed as to living conditions. Then again, the growth of vast manufacturing plants, often situated in places far remote from large towns or cities, has sometimes necessitated the building of entirely new villages as places of residence for the workers, and the excellent business judgment which led to the establishment of these villages demanded the utmost in their planning and construction. Still another reason is to be found in the many forms of effort developed during the World War, for in many instances entire villages have sprung up, in what were waste places, for housing employes of vast government plants, and of course the necessary replacing of towns and cities in the devastated regions of France and Belgium has involved much rebuilding, and governments have not been slow to profit by the lessons taught by similar building elsewhere.

In America as well as in almost every country of western Europe the housing movement has now been under way for a period sufficiently long to give evidence of the ways in which it is being handled, and in this volume Mrs. Wood, who has made during several years a study and examination of housing, sums up and presents results by which housing progress in several European countries is compared. The results attained in Great Britain, and particularly in England, are especially interesting because conditions there are in many respects similar to those in the United States. Much has been accomplished in Great Britain by philanthropy, often disguised in various ways, and Mrs. Wood says that in the matter of financing housing enterprises and in the making of out-and-out gifts by wealthy individuals more has been done in Great Britain than in any other country, and indeed more than in all other countries put together. State aid, too, supplied in one form or another, has been a factor in developing housing. Apart from its economic aspect, English housing, possibly by reason of the length of time during which it has been developing, is interesting in many ways. It is admirable in its planning,—planning of entire villages as well as of individual houses or tenements,—and it excels by reason of its design which well expresses well settled English architectural tradition.

The volume also reviews the progress of housing movements in France, Italy, Holland, Belgium and other European countries, giving in each instance a résume of the legislation under which it has developed, and illustrations which are included show that each country clings tenaciously to its historic types of design.

It is surprising and disappointing to find that in the writer's opinion the United States is far behind other countries in the progress of its housing developments. It might be supposed that with many excellent examples of model city tenements and suburban or country indus-

Small Houses for the Community

By C. H. James and F. R. Yerbury
Foreword by Raymond Unwin

ENGLISH architects have been particularly successful with their handling of the "small house problem," whether the small houses be individual buildings or in the groups which are usual when a number of houses are erected by some one interest or by some industrial concern for housing its employes.

This book gives an excellent presentation of the best of such work, illustrations of the exteriors and interiors of houses of various types and materials and the floor plans making plain the results of economy of material and floor area which present-day building conditions demand. A valuable summing up of a subject which is of interest to architects everywhere, particularly to those whose work is largely of a domestic character.

Text, 140 Halftone Plates and Appendix, 10x12 ins. Price 31s, 6d.

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trial plants our achievements would compare at least favorably with those of other countries, but such is not the case. Mrs. Wood says: "I have made a point of seeing, under the guidance of visiting nurses or rent collectors or other competent persons, examples of the worst houses that remain in London and Paris, and also, more hurriedly, in other French and English, as well as Dutch and Belgian cities. And I can assure my fellow countrymen that I have nowhere seen houses even remotely comparable to the ten thousand old-law tenements of lower Manhattan, built before 1879, with their hundreds of thousands of inhabited rooms devoid of any opening to the outer air. Nor have I seen any surviving layout as bad as that of the North End of Boston, with its four-to-seven-foot streets between five-story buildings and labyrinths of rear tenements filling the interiors of its blocks. The people of western Europe have undertaken national housing schemes, not because their need is greater than ours, but because they are more convinced than we are of the importance of good housing in the making of good citizens, and of the obligations of communities in connection with the house supply. Public opinion on housing questions in Europe is at least a generation ahead of ours in the United States. We are still discussing points which they settled 40 years ago. Accustomed to regard America as a synonym for progress, Europeans find it hard to believe, for instance, that we still cling to the exploded theory that supply and demand, in the long run, can be relied upon to produce satisfactory homes for working people."

CHURCH BUILDING. A Study of the Principles of Architecture in Their Relation to the Church. By Ralph Adams Cram. Third Edition. 345 pp., 6 x 9 ins. Price $7.50. Marshall Jones Company, Boston.

SINCE the appearance of the original edition in 1901, Mr. Cram's excellent volume on church architecture has been the best known and most authoritative work on ecclesiastical building in America. No one else has made so thorough a study into the history and development of American church building; there is no one so wise, unerring and resourceful in diagnosis of its ills, and no one perhaps so skillful in the treatment of its disorders as the architect whose name is so closely associated in the public mind with ecclesiastical architecture that it is mentioned whenever church building and the arts which enter into church building are discussed.

This new edition of "Church Building" differs from the earlier editions chiefly in being more complete. In a final chapter, "25 Years After," Mr. Cram surveys what has been done during these past years and finds that marked advance has been made not only in ecclesiastical architecture proper, but also in all the allied arts which serve architecture and aid so powerfully in securing its triumphs. In order that this advance may be made visibly apparent the illustrations of this new edition are very largely of work during the past 10 or 15 years, illustrations which show the exteriors and interiors of buildings which would have done credit to the best eras of ecclesiastical architecture and examples of craftsmanship worthy of the days when craftsmanship was at its best. It is a valuable edition of a highly valuable work.

OLD ENGLISH WALNUT AND LACQUER

By R. W. SYMONDS

QUITE as important in many types of architecture as interior design is the planning of furniture which goes with it. For each of the historic styles there were designed accessories which by being in agreement and harmony with their surroundings aided in creating the effect which the type made possible, easily marred by use of furniture unsuited to the surroundings.

With the architecture of no country or period was there used furniture more beautiful and distinguished than in England during the late Stuart and the early Georgian eras. Attracted by economic opportunities, the most skillful designers in Europe planned furniture which was built by the most finished of craftsmen. This was the "Walnut Age," during which were made masterpieces in walnut, and intercourse with the East brought the use of lacquer, also fashionable, and imitated presently by English workmen.

WRITTEN by one of the foremost students of English furniture, this work covers fully and completely the subject with which it deals. The design of furniture, its structure and its ornament, whether carved, inlaid or lacquered, its finish, and the care which furniture should receive are fully discussed, and there is given advice as to the identifying of old pieces and the detection of modern copies of old English furniture often sold as old to the unwary.

Intended for the furniture maker almost as much as for the designer, student or collector, the volume contains diagrams showing the details of joining, varieties of inlay, types of stretchers and spirals, and perhaps the most valuable feature of the work is the large number of excellent illustrations showing furniture of all the different kinds—bureaux, tables, chairs, stools, settees, cabinets and clocks developed in walnut or lacquer.

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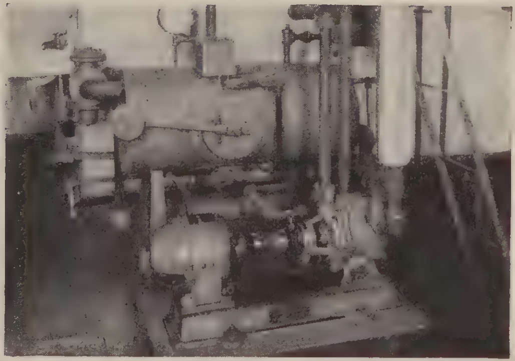

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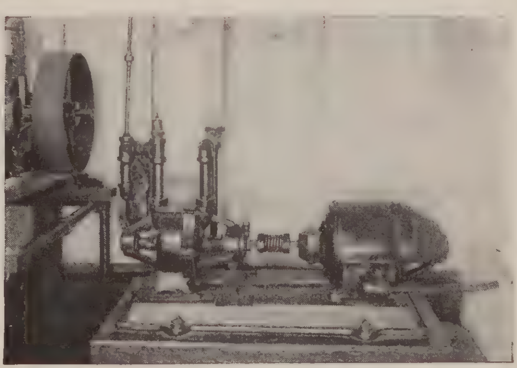

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CONTENTS *for* JANUARY 1925

PLATE ILLUSTRATIONS	Architect	Plate
House of Carll Tucker, Esq., Mt. Kisco, N. Y.	*Walker & Gillette*	1—6
St. James' Church, Lake Delaware, N. Y.	*Cram & Ferguson*	7, 8
The Forum Studies of European Precedents (Plates 17-24)		

LETTERPRESS	Author	Page
Cover Design; "Homewood," Baltimore	*From a Drawing by Louis C. Rosenberg*	
The Editor's Forum		41
Carll Tucker House, Mt. Kisco, N. Y.	*Walker & Gillette, Architects. From a Sketch by O. H. Torp*	Frontispiece
St. James' Church, Lake Delaware, N. Y.	*John Taylor Boyd, Jr.; Cram & Ferguson, Architects*	1
The Greek Revival Capitol, Columbus, O.	*Thomas E. O'Donnell*	5
House of Carll Tucker, Esq., Mt. Kisco, N. Y.	*Walker & Gillette, Architects*	9
Mosaic Flooring of Santa Prassede, Rome	*Alfred Mausolff*	17
Review of Building Activity During 1924	*C. Stanley Taylor*	23
The Building Situation		27
Building Economics Digest		28

LETTERPRESS (Concluded)	Author	Page
Building Labor Productivity and Costs		29
Economy in Concrete Forms	*E. F. Rockwood*	31
English Cottage Type Dwellings	*Leland Hubbell Lyon*	33
Casement Windows for the English Cottage		37
Eight-Room English Cottage, New Rochelle, N. Y.	*Leland Hubbell Lyon, Architect*	41
Cottage in the English Style, Riverdale, N. Y.	*Julius Gregory, Architect*	43
English Cottage at Fitchburg, Mass.	*Prentice Sanger, Architect*	45
Studio Cottage at South Norwalk, Conn.	*Frank J. Forster, Architect*	47
Stone Cottage in the English Style, Riverdale, N. Y.	*Julius Gregory, Architect*	49
A Gate Lodge at Cincinnati	*R. C. Hunter & Brother, Architects*	51
Small English Cottage at Pelham, N. Y.	*Bloodgood Tuttle, Architect*	53
Stucco Cottage at Bronxville, N. Y.	*Lewis Bowman, Architect*	55
Details of Small Louis XVI Salon, Compeigne	*C. Hamilton Preston*	57
Some English Types of Tables		63

PARKER MORSE HOOPER, Editor

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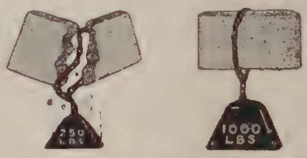

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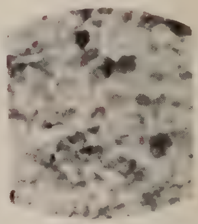
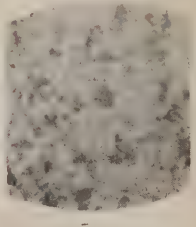


The average stucco being marketed today is extremely porous and therefore NOT WATERPROOF. Notice the spongy porous formation in this enlargement and compare the density of Bishopric shown below.



Bishopric Stucco

BISHOPRIC STUCCO *over* **BISHOPRIC BASE**

"A Complete Wall Unit for all Time and Clime"

THE EDITOR'S FORUM

LONDON SURVEY COMMITTEE

FOR more than 30 years the London Survey Committee has continued its work, which is the presentation in book form of the architecture of the ancient London parish churches. During many years the London County Council has been coöperating in this important work, and the result is the issuing of the beautifully printed "Parish Surveys," 20 of which have now appeared counting that covering St. Helen's, Bishopsgate, which is now in press, or possibly already issued.

In 30 years' time a new generation has arisen, and the Committee has seen a profound change in the attitude of the general public toward the historic architectural monuments of England. A Royal Commission is now producing a learned and detailed inventory of ancient buildings, county by county, based largely upon the model of the work of the London Survey Committee. Acts of Parliament have been passed for the better protection of more important buildings, funds are being raised by international effort for the repair or restoration of certain buildings, and the resources of a well equipped government department are being directed to this end under the guidance of His Majesty's Inspector of Ancient Monuments, who is exercising general supervision over this work of national importance.

The particular work of the London Survey Committee possesses, of course, a high degree of interest to architects everywhere, to whom the records of old London architecture constitute a wealth of permanent interest, and the scope of the Committee's work could be broadened and its prosperity increased by the accession of new members. The valuable publications of the London Survey Committee are to be had from its headquarters, 27 Abingdon Street, London, S. W., and its Secretary will gladly respond to inquiries regarding its work or the enlargement of its membership, which it encourages.

COMPETITIONS FOR FELLOWSHIPS

THE American Academy in Rome announces its annual competitions for fellowships in architecture, painting, sculpture, musical composition and classical studies. These fellowships will be awarded after competitions, which, in the case of the fine arts, are open to unmarried men who are citizens of the United States; in classical studies, to unmarried citizens, men or women. It should be noted that in painting, sculpture and musical composition there are to be no formal competitions involving the execution of work on prescribed subjects, but these fellowships will be awarded by direct selection after a thorough investigation of the artistic ability and personal qualifications of the candidates. Applicants are required to submit examples of their work and such other evidence as will assist the juries in making the selections from among the contestants.

For the fellowship in painting the stipend is provided by the Jacob H. Lazarus Fund of the Metropolitan Museum, established by Mrs. Amelia B. Lazarus and Miss Emilie Lazarus.

For each fellowship in the fine arts the stipend is $1,000 a year for three years; in classical studies there is a fellowship for one year with a stipend of $1,000 and a fellowship paying $1,000 a year for two years. All fellows have opportunity for travel, and fellows in musical composition, of whom an extra amount of travel is required in visiting the leading musical centers of Europe, receive an additional allowance of $1,000 a year for traveling expenses. In the case of all fellowships, residence and studio are provided free of charge at the Academy at its extensive headquarters in Rome.

Entries will be received until March 1. For circulars of information and application blanks address Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York.

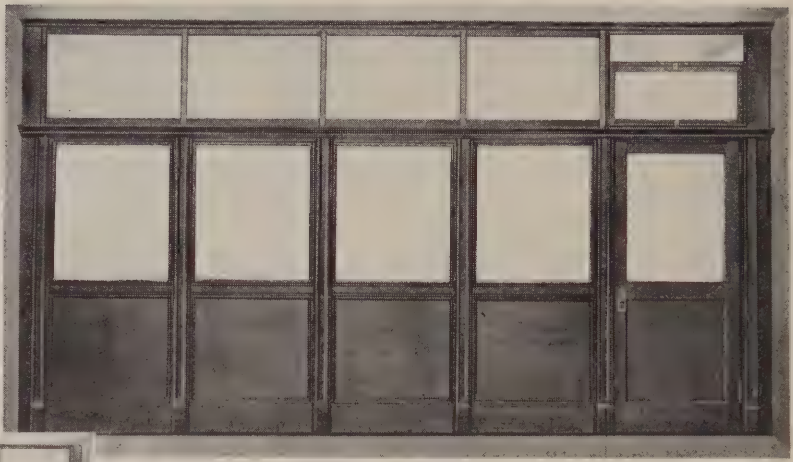
A NEW "FORUM" DEPARTMENT

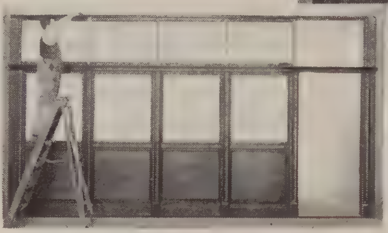
HIGH costs of construction have made of particular importance the "small" building of every type. In recognition of its importance, THE FORUM has inaugurated a permanent department to be devoted to its study. In this issue on page 33 there will be found a discussion and analysis of "The English Cottage Type of Dwelling"; other varieties of domestic architecture and other kinds of buildings will be dealt with from time to time in a manner which it is believed will make this department of highly practical value.

AN INTERNATIONAL EXHIBITION

FORMAL announcement has recently been made by D. Everett Waid, President of the American Institute of Architects, of the holding of an Exposition of Architecture and Allied Arts from April 20, to May 2, 1925, at the Grand Central Palace, New York. This exposition will be held under the auspices of the Institute and the Architectural League of New York, and during the period of the exposition, the American Institute of Architects will hold its 58th annual convention and the Architectural League its 40th annual exhibition.

The exposition is being planned upon broad lines, and among the directors whose names are announced are those of men prominent in every department of effort. The Manager of the exposition is Charles H. Green, 105 West 40th Street, New York.

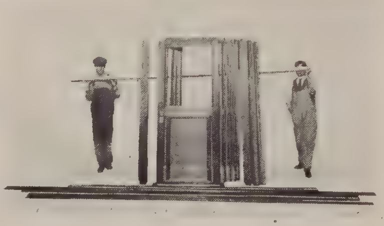




Removing crown moulding with screwdriver. Extension posts then slip down out of sight into main posts.

Lower crown moulding is also screwed in place. Remove it and the coupling irons and sections are ready to be moved.

Sections and posts come apart with the greatest ease.



Here is the partition shown at top of page, taken apart and ready to be re-erected in new location. Note how compactly it piles for storage or shipment.

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a
Miracle *of* Movability

Any carpenter, with only a screwdriver, can do in a few hours with Telesco Partition, what would take several days to do with ordinary partition.

Any wood and glass partition is easy to erect. But what about taking it apart when it has to be moved? If nailed together, it has to be ripped and damaged. When re-erected it looks old and worn.

Then if it has to be erected under a different height ceiling it has to be practically rebuilt to reach the new ceiling height.

Telesco Partition is erected or taken apart with only a screwdriver and because of the telescoping posts, will fit to any height ceiling.

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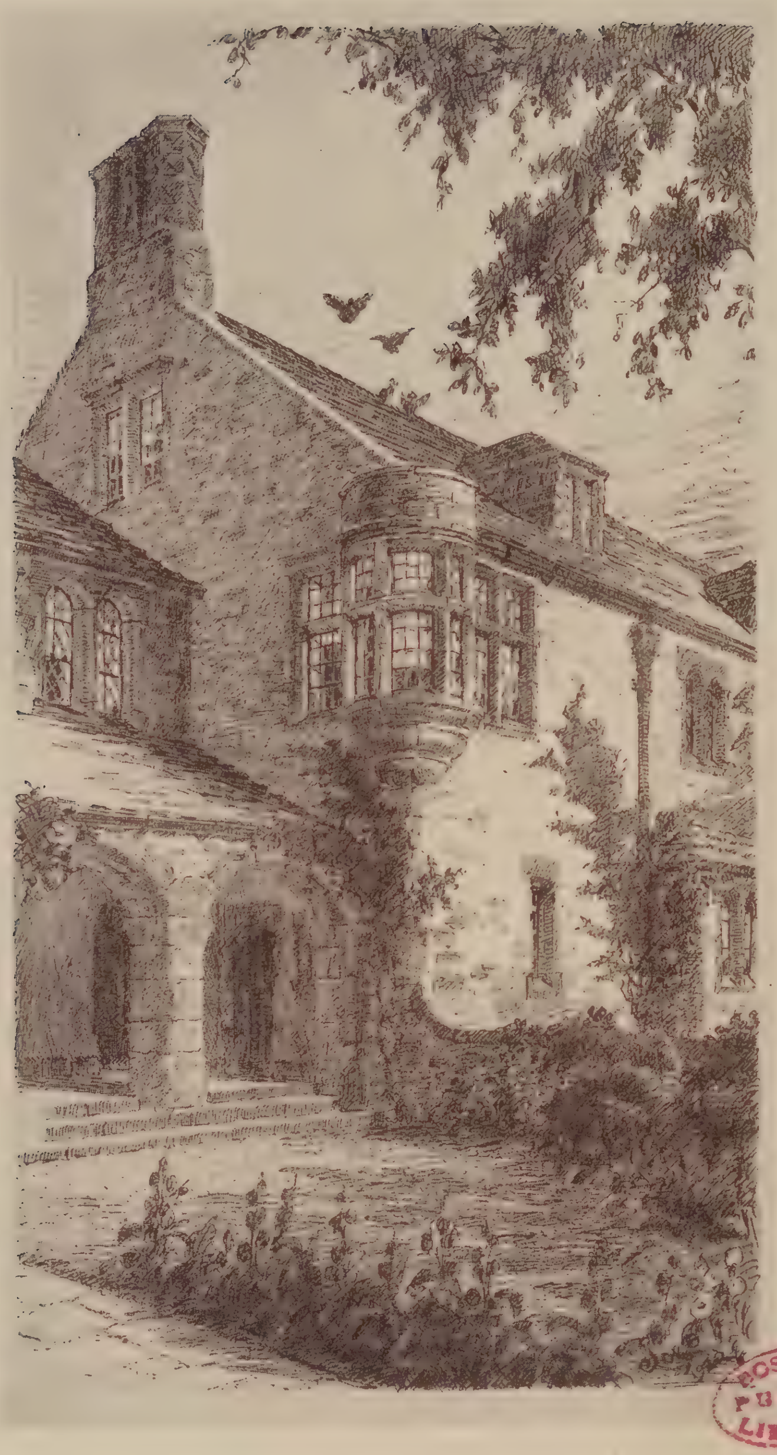

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The
ARCHITECTURAL
FORUM

Volume XLII JANUARY 1925 Number 1

St. James' Church, Lake Delaware, N. Y.

CRAM & FERGUSON, Architects
By JOHN TAYLOR BOYD, JR.

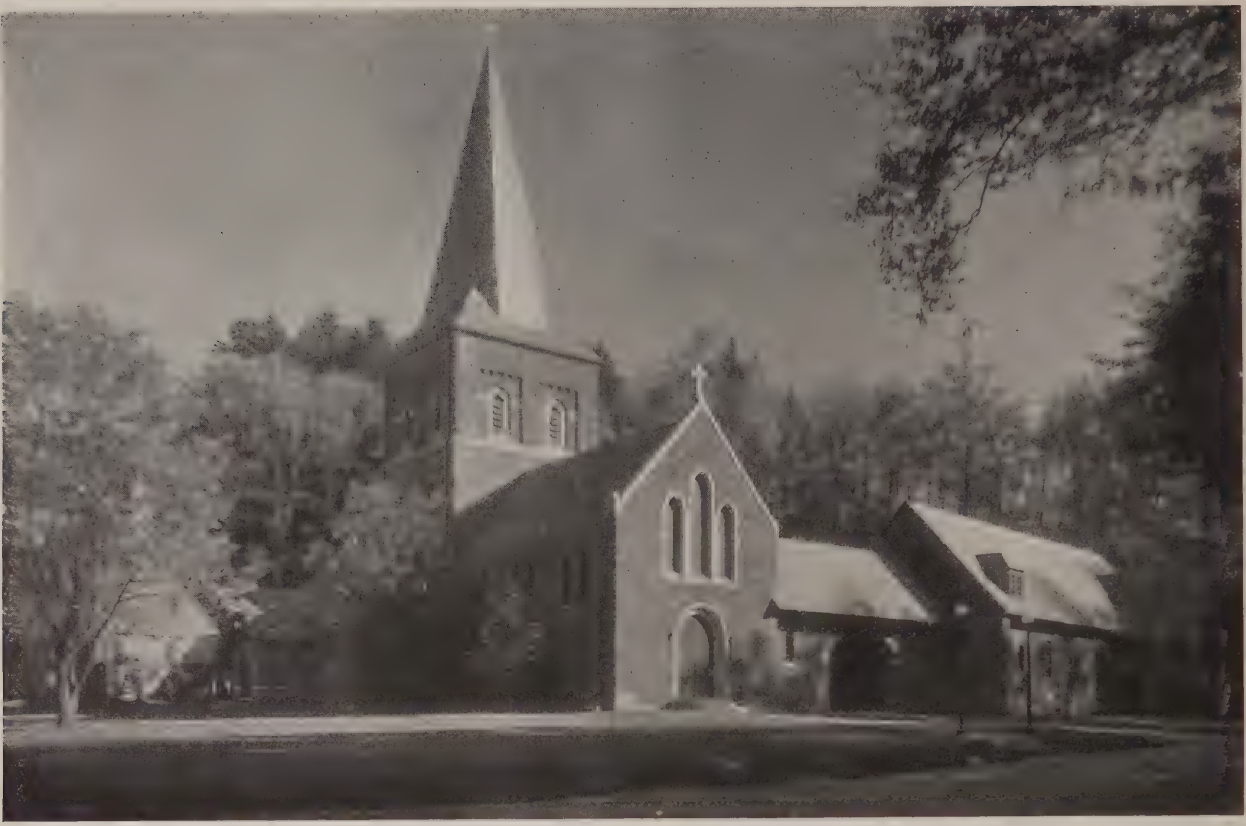
TO bring out a large idea in a small work,—this is one of the hardest feats in architecture, and when this feat means the welding of many varied picturesque motifs together into a simple unity, the result is close to a masterpiece.

For these reasons, this little rustic church group at Lake Delaware is significant. Its significance is all the greater, moreover, because the attempt at picturesque, informal design is coming to be more characteristic of contemporary architecture each year, and this bit of architecture succeeds strikingly where other architecture so often fails. Mr. Cram has the secret of knowing how to achieve originality, warmth, color and humanness, expressed architecturally in the beauty inherent in structure, and in the evident touch of the human hand on building materials. It is the ancient ideal of master building and craftsmanship, and now that American art is turning eagerly towards it, let us not forget that Mr. Cram has been preaching and practicing it with rare success for over a generation. The fact that he can achieve the ideal in greater perfection than most artists makes him today seem strangely new.

The ideal of master building is noble. It is worth every sacrifice, because its attainment will mean the arrival of a truly great architecture. Since it is so difficult, the ideal deserves the most earnest study and effort. Unity versus variety, originality versus design, interest versus form,—here is the oldest dilemma in art. It has eddied the current of style at every bend in the stream, and it has bedeviled every artist since prehistoric man took up mural decoration. If so well known, why make so much fuss over it?—one may ask. Because, like many well known qualities—as for instance, honesty—it is the hardest to attain in practice. In art, as in other activities, often the worst failures occur through overlooking the obvious. Where the workmen in a situation are in doubt, the master often comes along and astonishes everyone by perceiving the obvious!

Mr. Cram is one of the rare few who grasp this truth. He takes many divergent elements of the picturesque, conjured out of a rich imagination, and binds them together into a bold, simple mass, with all surplus form pared away until it is almost gaunt; and he does this in an effect so dramatic and so transcendently obvious! Because of his mastery, Mr. Cram has been a splendid leader in American architecture in this formative period, the significance of which we can only guess at. In fact, he has shared leadership with Charles F. McKim. Both men have been indispensable to American architecture, McKim insisting on perfect form, on balance, poise, maturity, perfection of detail and exquisite taste; and Cram on freedom and directness according to conditions of site, the expression of structure, the poetic touch of the human hand on building materials, carried out in perfect unity. Two great idealists, they compassed between them most of the many-faced truths of architecture. One belief they held in common,—one which should be better understood. This was the insistence on unity, on perfect form. In McKim's case the unity was spoken of as the "monumental tradition," the "one big dominant," while with Cram it is known as the "dramatic effect." Essentially the meaning is the same, namely, a large, simple unity, in which some idea predominates to give an overwhelming single impression. This single impression is built up in the design by forcing each different element to enhance the impression, in a series of rhythms and balancings, culminating in the dramatic climax. This is design. The process is the opposite to that which is too often practiced, in which design is felt to be a stringing together of motifs and details, charming in themselves, but whose very charm has been the downfall of the designer, who has worked on each one by itself, without regard to the others, until he has made it inharmonious or over-emphasized, or else has put it in the wrong place. He has not felt its true importance.

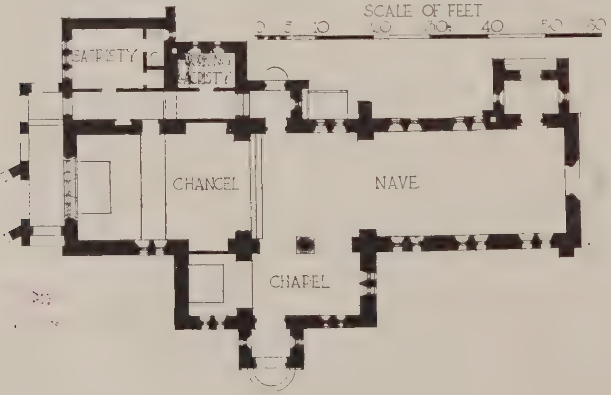
Of the two processes the first is design, and is that more likely to result in a true work of art, while the other is significant, more like surface decoration. In the latter type architecture descends to clever draftsmanship. Whenever the decision comes to the designer as to whether a given detail be made more interesting or whether it be made more harmonious with the whole, he will choose to make it more inter-



General View

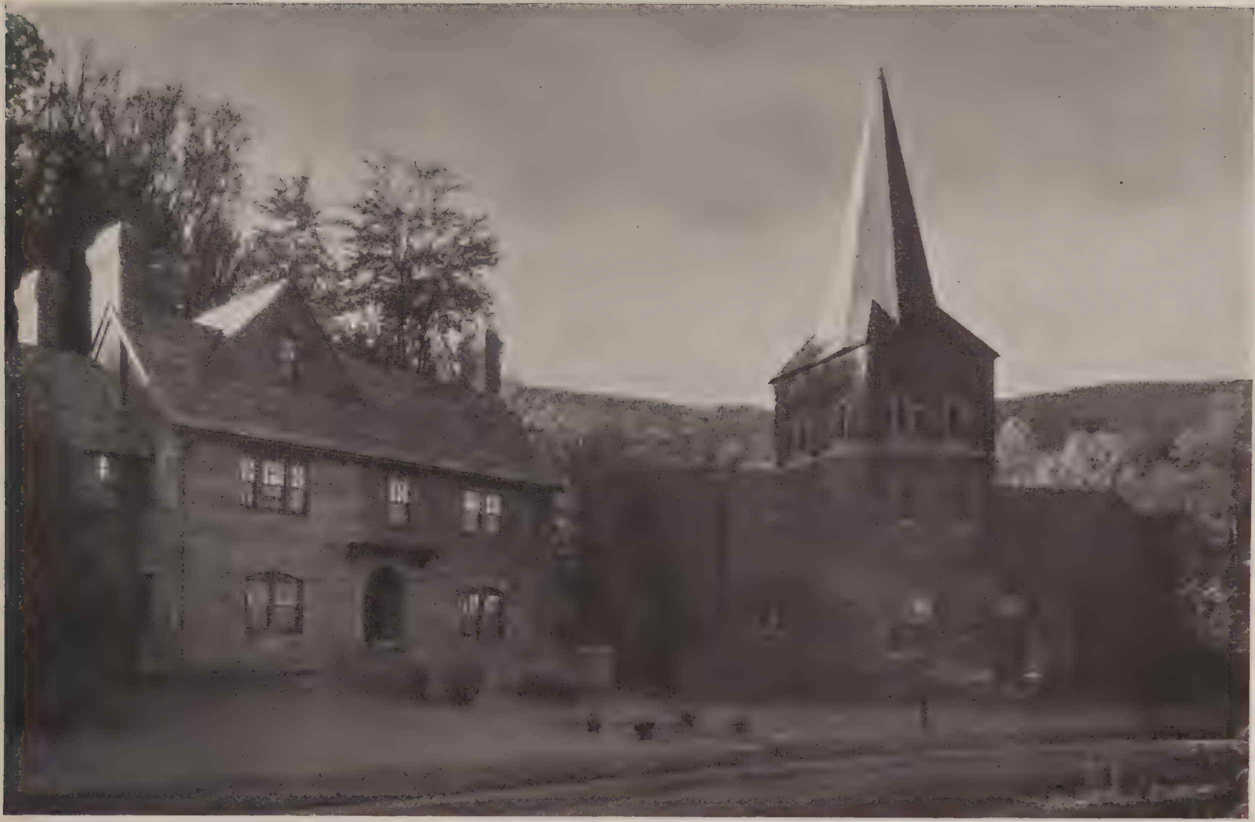
esting, not realizing that, to the clever hand, the path of the charming is likely to be the easiest way. The real and hard part of design—the coördination—is shirked.

Mr. Cram's example is particularly vital today, now that architects all over the country are striving for picturesque, informal effects. To say this is not to imply the formal revival of the Gothic style as, at one time, many people thought Mr. Cram was advocating. Mr. Cram's ability is too true and too inspiring to be crystallized in such a sweeping generalization. He has too many works to his credit, which, like this little rustic church at Lake Delaware, are free, direct masterbuilding, rather than archæological Gothic. In any case, they are at least as free as many of the contemporary designs of the "English" type, which pass for modern, but which stick close to their mediæval origin. Unfortunately, intimate knowledge of the Gothic technique is so rare today that people do not appreciate Mr. Cram's perfect mastery of it, and how far he can successfully depart from its historic conventional forms when it suits him. A few minor details do not make architecture, nor do they determine whether a work is living, inspired, or dead, belonging to another age. Mr. Cram is the true architect, because he thinks in three dimensions, in mass structure and building materials, and some of his works at least are so integrally adapted to the conditions of their situation, that they seem in many ways modern.

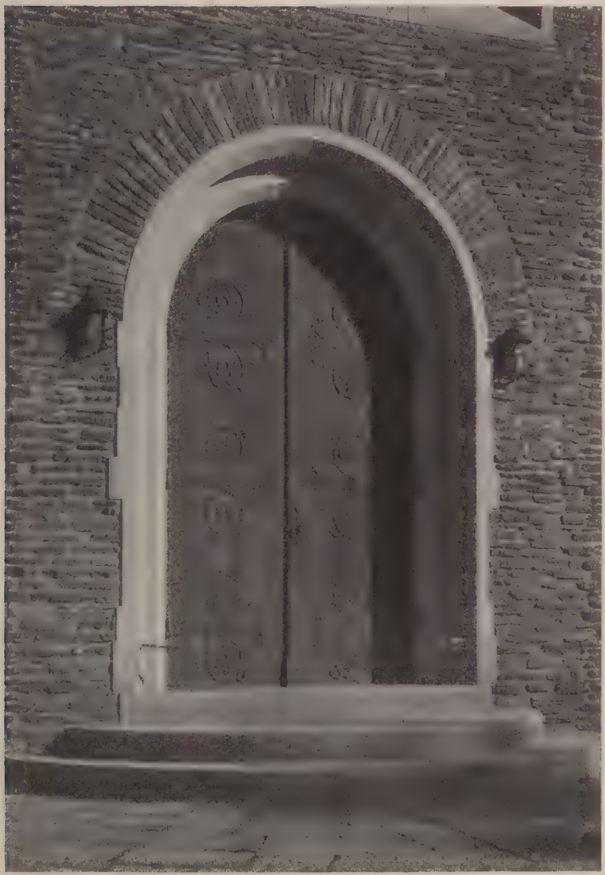


Plan of Church

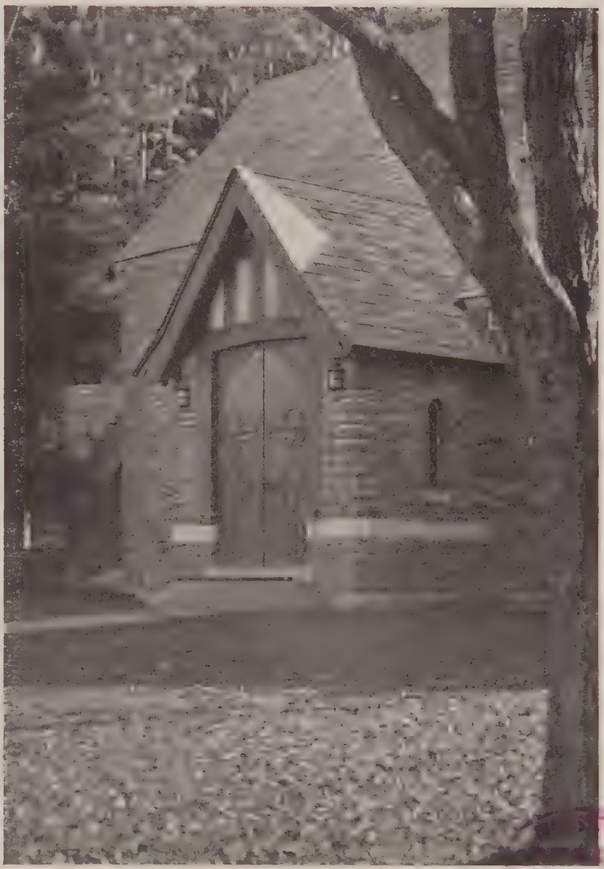
This church group is an example. Details are so few and so simple that they seem entirely pertinent. The effect is almost that of pure form. Notice how the elements of design have been built together in one bold, squarish mass, resting on a comparatively flat site, and thrown up boldly against the encircling crests of hills with magnificent screens of trees. A striking contrast of buildings with their natural setting, yet there is no discord. The buildings seem to "belong" to their site, so perfectly are they fitted to it. In the mass itself, so severely plain, the large, almost unbroken, planes of wall and roof sweep up in a progression of angles, to the pyramidal peak of the tower. This tower is the "one great dominant" for both architecture and landscape. How different is this bold effect of simple unity from the shapeless, haphazard, sprawling mass of many informal designs,



VIEW OF CHURCH AND RECTORY FROM THE NORTH



DETAIL OF MAIN ENTRANCE DOOR



ENTRANCE TO LADY CHAPEL

ST. JAMES' CHURCH, LAKE DELAWARE, N. Y.

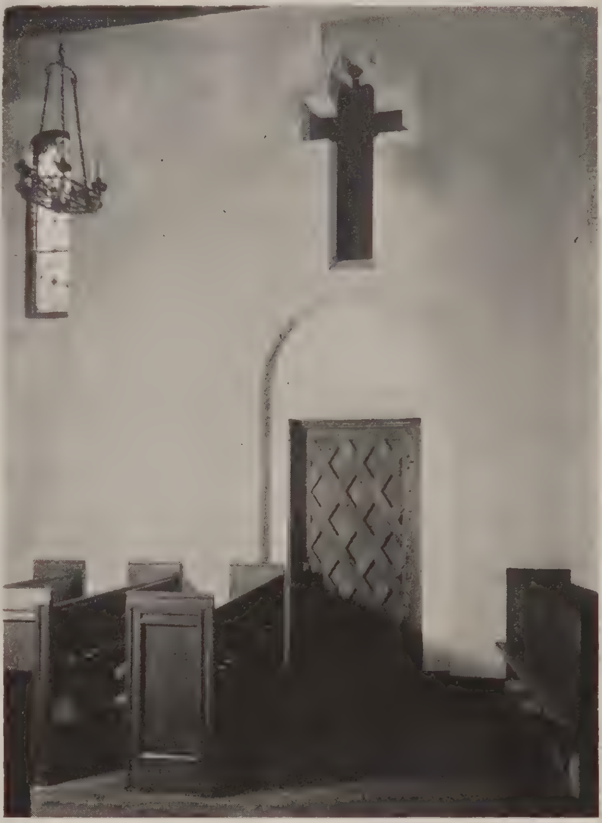
CRAM & FERGUSON, ARCHITECTS

Additional Illustrations on Plates 7 and 8

Photos. Paul J. Weber

in which the basic idea has not been discovered, but for which instead has been substituted the false exaggeration of one or more details of no intrinsic importance! Often one sees picturesque architecture in which two or more motifs compete for primacy, with a most discordant result.

The interior of the church indicates use of the same vigorous, sure method. The plan contains an unusual variety of elements apparently thrown together in a loose way, but which combine in one great contrast of light plaster walls with dark, oak beamed ceilings, oak floors, benches and other church furniture. Principally, the church consists of a long, narrow nave, having a single row of benches on each side the one center aisle, with much emphasis of chancel, as befitting the sanctity of the Holy of Holies. On one side of the nave, towards the chancel, is attached a small chapel, in the shape of a long rectangle, whose axis is parallel that of the nave, and on the other side are placed sacristy and offices. There are several corridors of circulation and four entrances. Altogether Mr. Cram has arranged much of interest in a very narrow compass. But the interest is in the solid geometry, and in the contrast of plaster walls with oak woodwork. Detail is subordinated, except in two places. One is the dramatic climax of the emphasis of the chancel, where the three tall pointed arches of the east window, combined in one motif with the altar, form a splendid architectural dominant at the point where the religious interest is centered; the other is the single column which separates nave from chapel, and which, in a simple, forceful way, gives interest and a touch of charm to bare flat walls, which would otherwise be too monotonous. The daylight is cut down by using small windows,—another factor in the result. These small openings make the interior more restful, in our strong sunlight, but not gloomy, because of the light walls; and they also serve to preserve almost unbroken the ample wall planes.


Detail of Door and Wall Penetration at the Main Entrance to the Church

In this result, so harmonious that one forgets its apparently easy mastery rests on perfect handling of building materials, some details of the craftsmanship are worth recording. At this point, I shall interpolate two paragraphs from a letter written by Mr. Cram to the Editor of The Forum which are valuable not only because they concern the church at Lake Delaware, but also because they are Mr. Cram's. "There is very little to say about the materials of the church except the general stonework. When I first looked over the grounds with a view toward designing the new buildings, the question was raised as to the material to be used. I pointed to the stone walls all around the place, and said 'We will use that.' I was told that this was quite impossible, and asking why, received the reply that it 'simply wasn't done.' This answer failed to satisfy me, and after much argument it was decided to go ahead and try the experiment. The result more than justified my confidence. The stone is a curious, thin sort of brown shale, many of the stones running not more than an inch or an inch and a half in thickness, and so up to about 6 inches. Many experiments were made in the laying up of the stone, and there was finally produced a most admirable result.

"The trimming stone, such as there is, is Indiana limestone. The roofs are covered with rough, variegated slates. All the plaster of the interior is hand-troweled, that is to say floats, straight edges and everything of the sort are discarded and the whole thing done with a brick mason's trowel, so obtaining a slightly wavy surface that is smooth in texture but irregular in effect. All the woodwork is stained gray-brown. The reredos is carried out in full color and gold. The reredos for the lady chapel is also done in color and gold; in the center is a small and most exquisite picture by Pietro Lorenzetti, and the rest of the design has been built up to enshrine it."

These few words help explain the secret of Mr. Cram's method, but only in part. The rest is the work of his own supreme ability to combine the poetry, romance and history of architectural achievement with the practical requirements of modern civilization. Not only in the adaptation and revival of the noblest examples and finest details of Gothic architecture, but also in the use of precedents from the Georgian and the Italian Renaissance, has Mr. Cram shown consummate versatility and genius.

The Greek Revival Capitol at Columbus, Ohio

By THOMAS E. O'DONNELL

Assistant Professor of Architecture, University of Illinois

ONE of the finest examples of the Greek Revival in America is the capitol at Columbus, Ohio. At the time of its completion it was considered, both in this country and in Europe, the most imposing state capitol in the United States. Today it is one of the few public buildings of its period and style which are still standing, unchanged, and serving their original purposes.

Whatever criticism may be brought to bear against the Greek Revival, it was a phase of that classicism in America which gave us what may be considered our first national architectural expression. It possessed all the attributes of a style suitable for important public and monumental edifices. That this borrowed style could, when properly interpreted, be made thoroughly applicable to American needs is proved by the Ohio state house, which has served a rapidly growing state for nearly 70 years, and that it is still considered serviceable is evident from the fact that it has been recently proposed to enlarge the structure by building a tower of offices over the central rotunda portion, in a manner similar to that adopted for the Boston custom house.

The erection of the Ohio capitol came at the time when the style of the Greek Revival was generally accepted for public buildings. Some of the finest public edifices in America were under construction at this time. Two structures in this style were being built in Washington, the Treasury Building, and the Patent Office, both by Mills. These seem to have established a precedent for public buildings generally, and no doubt influenced the commissioners of the proposed Ohio capitol, who, in their program for the competition, made it a requirement that the building should be in the Greek style.

The history and events connected with the construction of this unusual building are as interesting as is its architecture. In January, 1838 the General Assembly of Ohio passed an act to provide for the erection of a new state house at Columbus. In March, following, a board of commissioners was appointed by the legislature. The next month the commissioners met to formulate plans for carrying out the work and, following the custom of the time, "advertised for plans, offering premiums." In response they received between 50 and 60 sets of plans from different parts of the country.

In October the commissioners met again to consider the plans submitted, and awarded three premiums. Those submitting the successful designs were: Martin E. Thompson of New York, Henry Walter of Cincinnati, and Thomas Cole of Catskill, New York. Thompson was of the firm of Town, Thompson & Davis, and all were well known "Greek Revivalists." Walter was a recognized Greek Revivalist of the middle west and had done important work in Cincinnati. Cole, strangely enough, was not an architect but a landscape painter. However, his training had evidently included a thorough grounding in Classical architecture, and for that reason he was able to present an attractive design. The commissioners claimed that they had combined the "best ideas of the three prize designs," in the modified plan which they recommended and which was adopted. Although Thompson's design was given first place in the awards, it seems that Walter was employed as supervising architect to execute the work. Just how complete were the drawings which came to Walter's hands is not definitely known, but since the scheme adopted was a "combination" of the best ideas of three sets, it is quite evident that many changes and adjustments must have been necessary. What part Walter may have played in making these adjustments is not clear, but it is likely that he tried to introduce many of his own ideas. At any rate, the way of the supervising architect was not easy, and his services ended with the laying of the foundation and the cornerstone.

It is also difficult to determine what the composite design was like. None of the drawings seem to be in existence. There is a perspective drawing preserved in the state house which is said to set forth the building as originally designed. There was also a design published in the "Report of the Plan Commission of the City of Columbus," in 1908, which is said to be the "original design, submitted in 1850." From the date it is evident that this was not one of the original drawings, for the building had been under construction since 1839. It is probable that the exterior design was largely the idea of a single designer, and the combining of the "best ideas of the three designs" was confined to planning interior arrangements. Whatever the original scheme may have been, the plan and the exterior, as it was finally proposed, are preserved for us in an illustrated article published in the London *Builder* in 1852. A contemporary perspective view, evidently taken from the same source, was also published in Vol. II of *Gleason's Pictorial Drawing Room Companion*, Boston, 1852. In both journals a brief description of the building was included, and the name of the architect in charge was given as William Russell West.

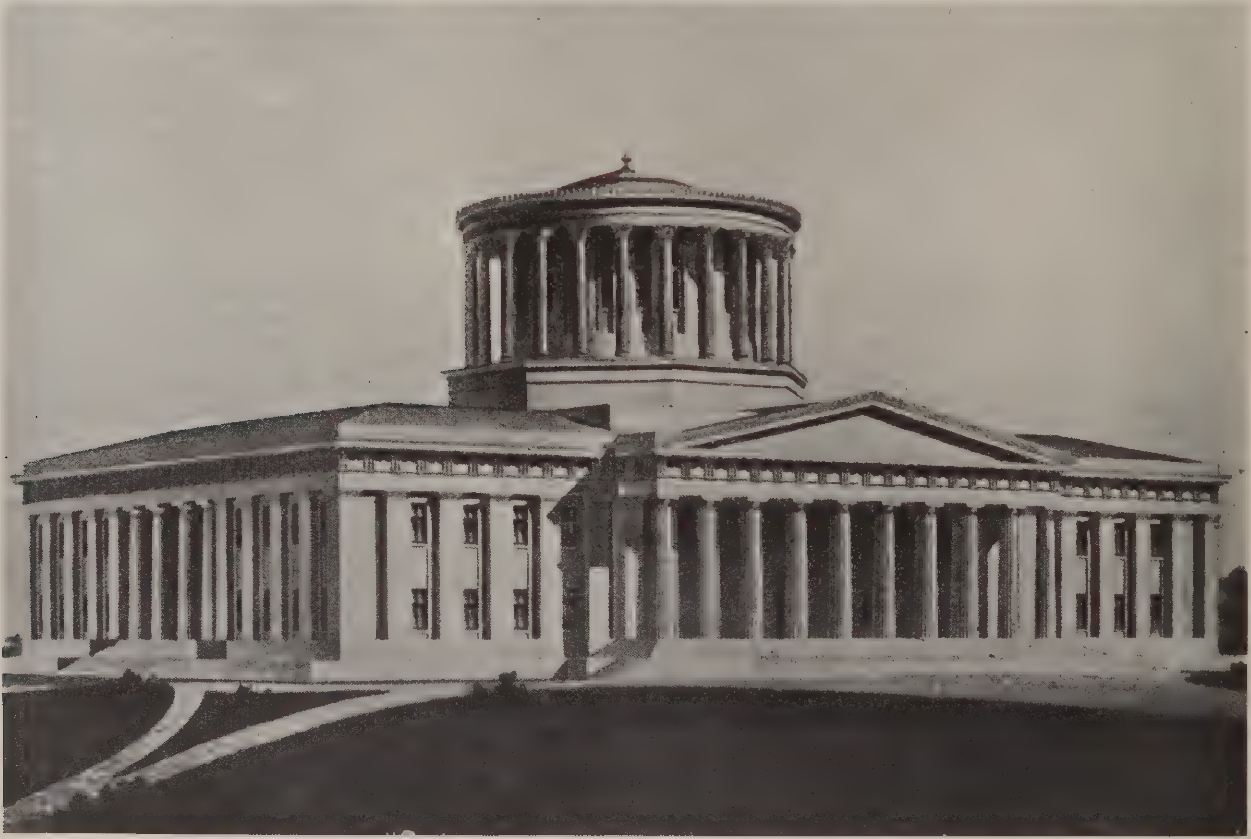
In the original competition, architects' estimates accompanied the plans submitted. As usual, some estimates were very low, while others reached nearly $1,000,000. The commissioners took an average of all estimates furnished, and reported that the building could not be built for less than $450,000. These estimates were based in part upon use of convict labor, which was to be procured from the state penitentiary located at Columbus. The commissioners asked for an appropriation of $50,000 to start the work. This was made, and in April, 1839, active preparation for the work began. The excavations were made, stone was brought to the site from a quarry a few miles away, and the foundation was begun under the superintendence of Henry Walter. Work on the foundations progressed rapidly, and on July 4, 1839 the cornerstone was laid with appropriate ceremonies.

At the next session of the legislature an additional appropriation of $30,000 was asked for by the commissioners; but, due to political disturbances, instead of providing the necessary funds the legislature repealed the act for the erection of a state house, and the work ceased. Six years passed, and it was not until February, 1846 that the General Assembly passed a second act to provide for the erection of a capitol. A new board of commissioners was appointed and a small appropriation made, but the work had to be again suspended in 1847 because of lack of funds.

In the early spring of 1848 the commissioners determined to push the work forward. The former architect, Henry Walter, had resigned, and William Russell West was appointed architect, and J. O. Sawyer was made general superintendent. Under these men the basement walls were completed, a railway was built from the quarry into the city for transporting stone, and labor-saving machinery was installed. In 1850 a more substantial appropriation was made. The railway was extended from the quarry all the way to the capitol grounds, and the stone was transported by steam. Hoisting machinery operated by steam was also provided, and skilled stone cutters were employed for the more finished work. The work progressed so rapidly that by 1851 the exterior walls were raised to a height of about 40 feet from the ground level.

Apparently changes had been made in the design as the work progressed, especially in the upper portions of the structure. The design of the main mass of the building, up to cornice line, seems to have been well determined before the basement walls were completed. It is certain that changes were made in the pediments and particularly in the cupola, most of them being effected for purposes of economy. By 1852 the final design was fully determined, which is shown by the illustrations published in the *Builder* and in *Gleason's*. These show the building in exactly the same form as it stands today, even to the crowning of the cupola. These perspective views were, no doubt, taken directly from the drawings of William Russell West, the architect in charge of the major part of the work from 1848 to 1854, and differ from his design of 1850 only in that the portico is not projected and that the peristyle is omitted from the cupola.

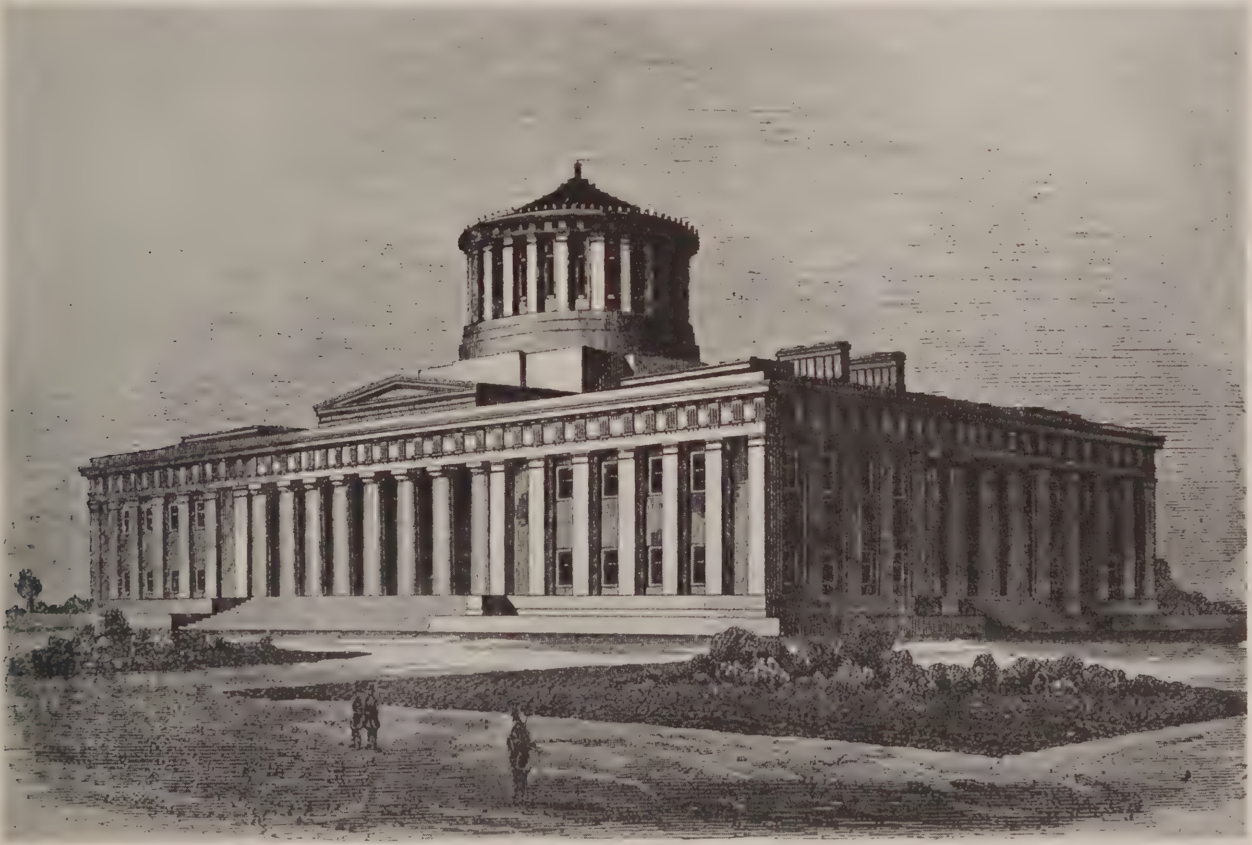
These views, published before the actual construction of the cupola was begun and nearly ten years before it was completed, are of particular value and



One of the Original Designs for the Ohio Capitol, Submitted in 1850, and Published in the Report of the Plan Commission of the City of Columbus in 1908 interest because of the light they throw upon the design of the cupola. This feature has been much criticized because of its bare and unfinished appearance; in fact the cupola is often referred to as the "cheese box." It has been the contention of many that the "original" design called for a dome instead of a conical roof. This perhaps is due to the fact that in recent years it has been thought that every state house must have a dome, which has led to the general conclusion that, in this case, a dome was intended but never added. The competitive designs have not been preserved. It is even likely that one or more of the prize designs included a dome. But since the design adopted for execution was a "composite," it is evident that the completed and accepted design for the building dates from a time considerably later than the competition and that none of the competitive designs can really be considered as the "original" design. Whether the first supervising architect, Walter, contemplated a dome in his early working plans is not known; but he must have carried the design of the crowning feature far enough to determine the areas of the foundations which he constructed. However, as already said, he resigned shortly after the laying of the foundation and the cornerstone, and West was appointed to the position. The latter served from 1848 to 1854, and carried the building from the footings up to the construction of the roof, and it is probable that it was he who fully determined the exterior design in most of its details, as shown in the views published under his name in the *Builder* and in *Gleason's*. The latter journal attributes the design of the cupola to West, at least so far as the conical roof of stone is concerned.

The design shown in the "Report of the Plan Commission of the City of Columbus," and said to be the original design, was submitted in 1850. Since West was the architect in charge at this time, it may be reasonably assumed that this was the design as he proposed to carry it out. In this design there appear two features which were not executed in the final work: the extended portico and pediment on the front, and the peristyle around the cupola. These were probably omitted for reasons of economy.

Although Mr. West had determined the final scheme and had carried the building from the foundation to the roof, he did not remain to complete the work, for he too resigned, in May, 1854, and N. B. Kelly was appointed to succeed him. By the end of the season all the stonework on the building was completed except the cupola. Kelly seems to have been something of a structural engineer as well as an architect, and his work had to do principally with the roof and cupola construction, the necessary arrangements for the heating and ventilation of the building, and the construction of the floors and stairways. Shortly after Kelly took charge of the work, he reported to the commissioners, in 1855, that he had found in the building no means provided for

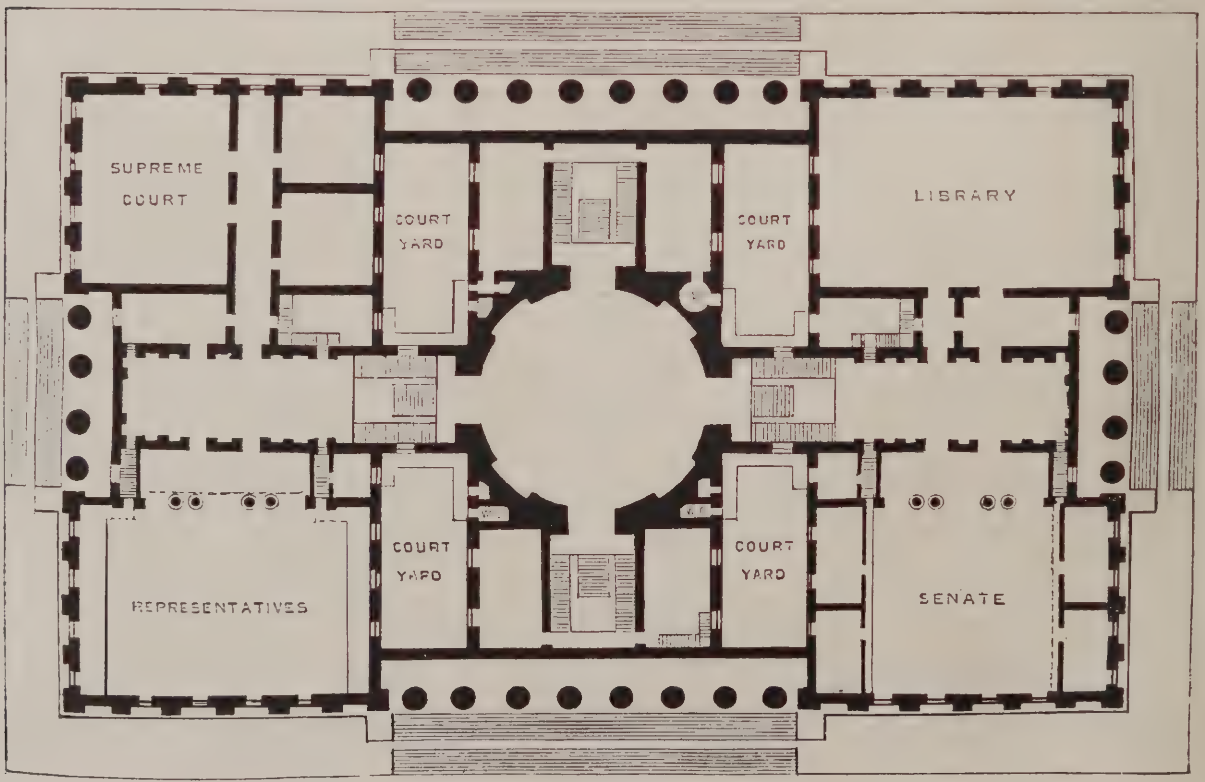


Perspective View of Ohio Capitol, Published in the London *Builder* in 1852, Under the Name of W. Russell West, Architect, Which Shows the Building as Finally Completed in 1861 ventilation, no provision for heating the rotunda and passages, and that a very inadequate plan of warming the rooms by means of hot air furnaces had been adopted. Kelly was responsible for the building in of an extensive system of wall flues, connected by means of brick ducts under the basement floor with two large vent stacks which he constructed in the light courts.

A new board of commissioners was appointed in 1856, and as a means of checking up on the work it was ordered that the plans be submitted to Thomas U. Walter and Richard Upjohn, as consulting architects. These men passed upon the work and did not make "any material change in the general plan or design of the building." Since the structure was nearly completed, it is difficult to see how they could! By January, 1857, the building was far enough advanced for it to be occupied, at which time there was a grand formal opening. Although occupied, there was still much work to be done upon the interior, and this was carried on steadily. For some time Isaiah Rogers, of Cincinnati, had been employed upon the detail drawings, and in July, 1858 he succeeded Kelly as supervising architect. Rogers was a well known Greek Revival architect of Boston and New York and still later of Cincinnati. At the time of his appointment the building was complete except for finishing the roof of the cupola, some of the interior finish, the steps, the grading of the grounds about the structure, and the erection of the monumental enclosing fence, all of which he entirely completed by 1861.

The building of the state house thus covered a total period of 22 years, although actual building operations were under way only 15 years of that time. Although the estimate of the first board of commissioners was less than a half-million, the final cost was over three times that amount. For its time it was one of the largest and most costly of the state capitols, and was distinguished not only for its style and beauty but also for its advanced type of construction, for it was practically a fireproof building, which was not a common thing at that period.

Since it is now but a matter of time until a new or enlarged structure will be necessary to house the many state offices in connection with the capitol, it will be of special interest to the architectural profession at large to see what disposition will be made of the old building. It is hoped that the state officials will endeavor to preserve the old structure so far as may be possible. As it is one of the few good examples left of the Greek Revival, this building should be preserved, intact, as a state monument and a worthy example of one phase of our national architecture. No addition or alteration to meet increased requirements of state officers and their departments can be made without ruining the simple, balanced plan of this severely restrained and dignified design. The architects of Ohio should unite to save this relic of our history from any changes or radical alterations. Why not erect a state office building, of necessary size and height, opposite the old capitol, in the design of which Greek Revival spirit could be consistently followed and preserved?



Plan of Main Floor of Ohio Capitol, as Published in the London *Builder* in 1852

House of Carll Tucker, Esq., Mt. Kisco, N. Y.

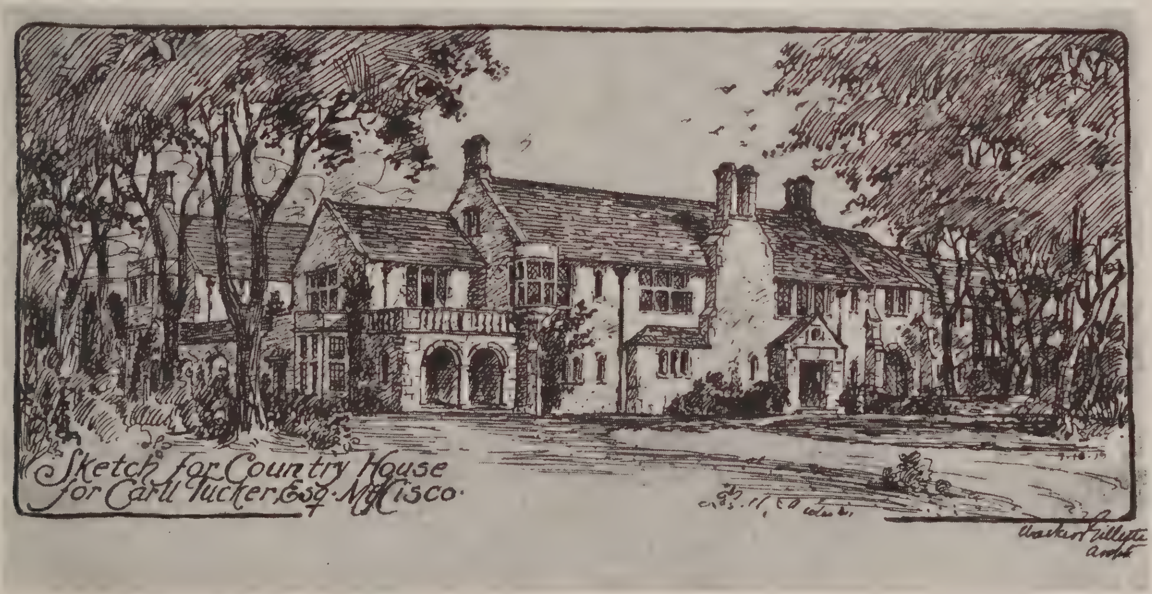
WALKER & GILLETTE, Architects

TO the three or four splendid examples of modern manor houses in the Tudor style, built in this country during the past few years, has been added one more, which in importance as well as quality of design equals any of its predecessors. In the country house of Mr. Carll Tucker at Mt. Kisco, New York, the architects, Walker & Gillette, have achieved a signal success in the modern interpretation of this fascinating English style. The main building, which is two stories in height, has been planned in the shape of a letter U, to which is attached a long servants' wing.

Although a plan of this shape is seldom found in the old Tudor houses of England, it adapts itself exceedingly well to the requirements of the modern American country house, permitting rooms in each of the two sides of the letter U to have windows in three walls. This fact makes it possible to have exceedingly light and sunny rooms. Another advantage of a plan of this kind is the sheltered court, enclosed on three sides by the house itself. In this case the orientation is such that every room has direct sunlight during some part of the day. The entrance front of the house is towards the southeast, so the garden court, with its covered cloister or loggia has a southwestern exposure.

Entering the house, spacious coat rooms and toilets are located on each side. The men's coat room on the left of the entrance connects with an ample study room for children. Beyond this study is a sport room, the walls of which are lined with built-in lockers. This room opens onto the eastern porch, adjacent to which is the large library with a fine bay window on the southwest. This library, located at the end of a gallery, is quite shut off from the rest of the house, giving it a pleasant isolation and privacy. Doors from this room open onto the eastern porch as well as the west cloister. From the library, the gallery, off which opens the children's study and sport room, leads to the central entrance hall. Off this hall is an octagonal breakfast room, connected with the large butler's pantry and servants' department. A long arcaded passage, which parallels the south cloister of the court, leads to the dining room on the north, the dining porch on the northwest, and the great living room on the south. This room, which is 52 feet long by 30 feet wide, has two large bays and a fireplace on the west side, while on the south side casement doors open onto the living porch.

Although the dining room and breakfast room are on opposite sides of the house, both connect with the butler's pantry, which adjoins the kitchen. This excellent arrangement permits the location of the breakfast room on the east, where it receives the morning sun, and the dining room on the west where the late summer sunsets may be enjoyed during dinner. The service portion of the first floor contains, besides the kitchen, the flower room off the breakfast room, the service stairway and elevator, as well as large pantries, store closets, servants' hall with its own pantry, and spacious servants' porch. A more interesting or better thought out plan for the main floor of a large country house can hardly be imagined. No detail which could add to the convenience or efficiency of operation has been omitted. The main stairway is attractively located off the arcaded gallery leading to the dining and living rooms, giving

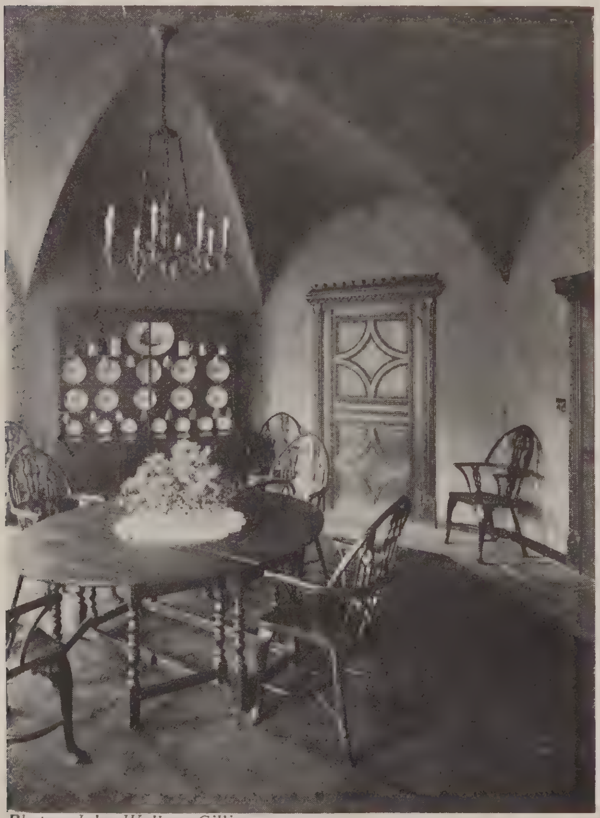


Pen and Ink Sketch of the Carll Tucker House, Mt. Kisco, N. Y.

it proper subordination to the main elements of the plan, rather than making it a chief and conspicuous feature of the main floor of the building.

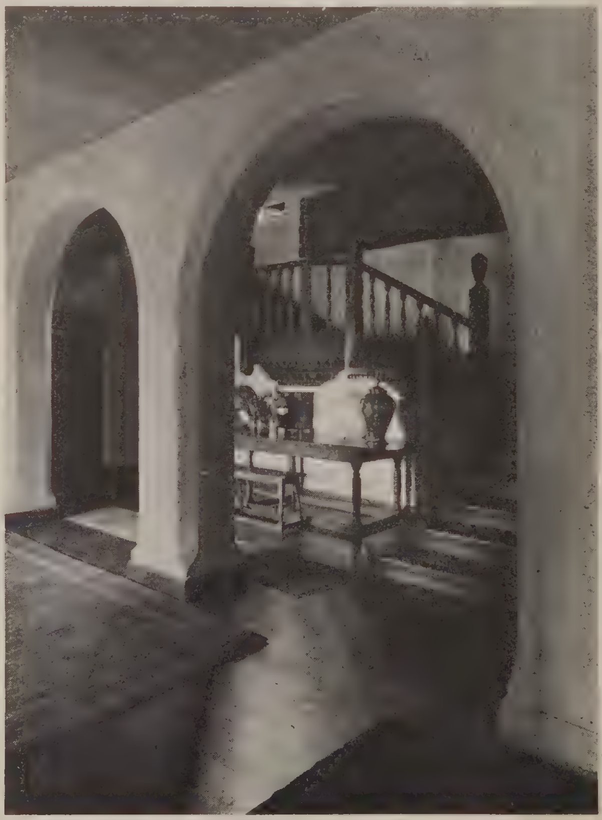
The second floor contains a number of bedroom suites, each with its own bath. Some of these suites include dressing rooms, boudoirs and sleeping porches. Altogether there are nine master bedrooms. Each of the wings of the house, enclosing the garden court, has a spiral staircase, in one case opening off the library, and in the other connecting with the living room. These small staircases, so characteristic of English Tudor houses, make accessible from the main floor the bedroom suites in the east and west wings without the necessity of using the main stairway located in the center of the house. The plan of this floor shows an unusually successful arrangement of rooms, baths, and large and small clothes closets. Although the arrangement in many cases is quite irregular, the rooms have been so planned as to be rectangular in almost every case. The two exceptions show a balanced effect of cut-off corners, which in no way detract from the pleasant proportions of the rooms. Above the breakfast room on the east is one of the sleeping porches, while the other two are in the west wing of the house, located in one case over the living porch and in the other over the dining porch. The second floor of the service wing contains the bedroom and bath for the housekeeper, the linen room, the seven maids' rooms and baths. Each of these rooms has a set bowl and clothes closet as part of its equipment.

The design of the exterior has been carried out in local stone laid up in rough random ashlar, with limestone trimmings, except for the interesting walls of the south court and the service wing, where stucco and beams have been used. The posts, arches and cornices of the south cloister are of wood, stained brown, showing an interesting use of tooth and zigzag patterns in piers and cornices. Heavy key blocks with pendant rosettes break the curve of the arches with a heavy note characteristic of the Tudor style. The interior of the cloister has a flagstone floor and vaulted stucco ceiling, which heavy plaster-covered ribs break into individual groined vaults. Two steps add importance and interest to the doors leading from this cloister into the house, except at the door leading from the west end of the cloister into the living room, where no steps are needed, as the floor of this room is on the same level as the cloister. Above the cloister, the wall is broken by two delightfully proportioned oriel windows supported by brackets hewn out of the upright beams which divide the plaster wall into panels. These panels are decorated in quaint raised plaster known as parge work. The whitewashed surface of the stucco walls on the three sides of this court break the monotony of the stone walls of the house and add a sense of restraint, repose and light to this court. The circular stair towers break the sharp line of demarcation between the stucco walls of the court and the stone walls at the ends of the two wings. Leaded glass, used in all windows of the house, add to the charm and quaintness of the design. The leadwork varies in design according to

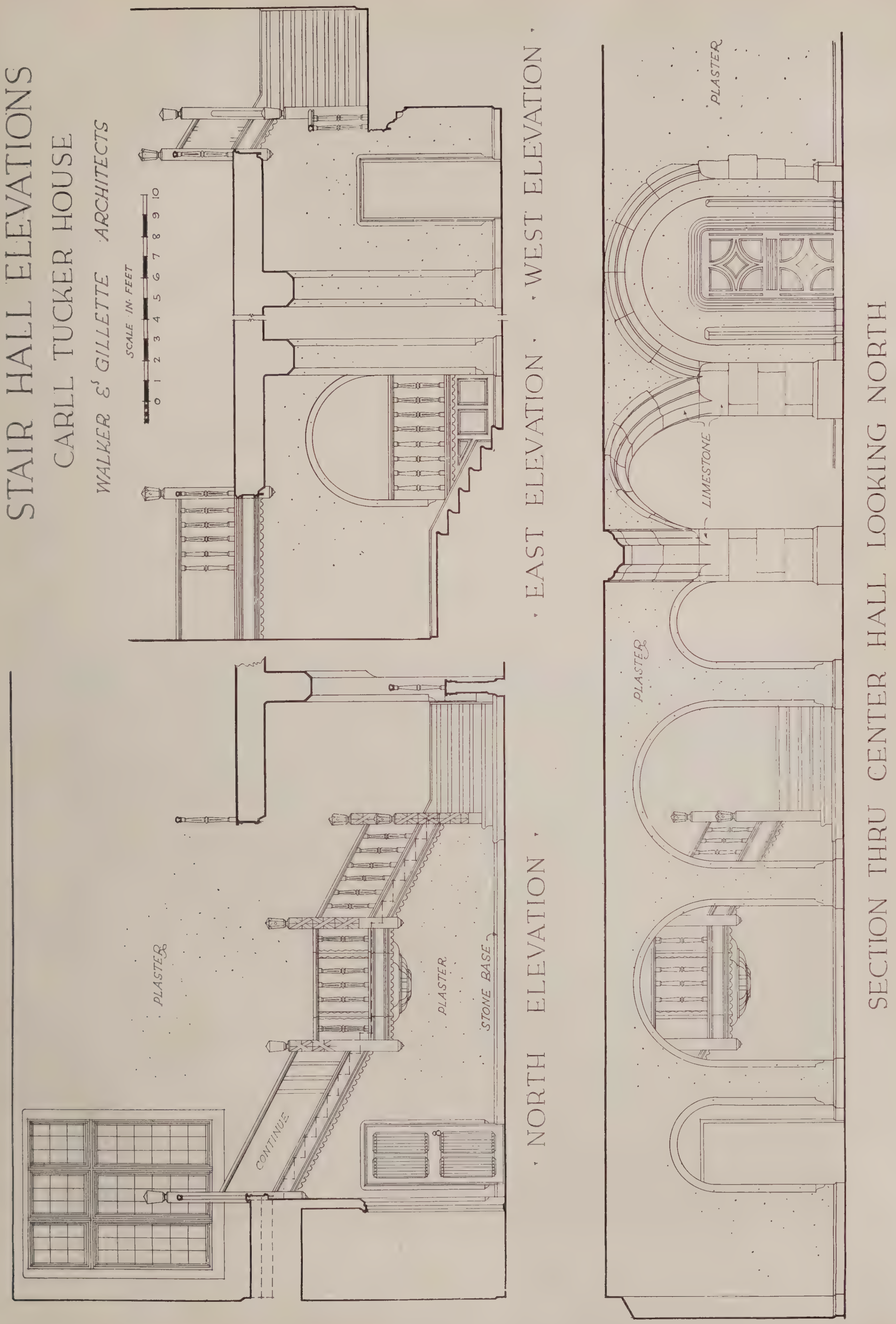


Photos. John Wallace Gillies

Octagonal Breakfast Room



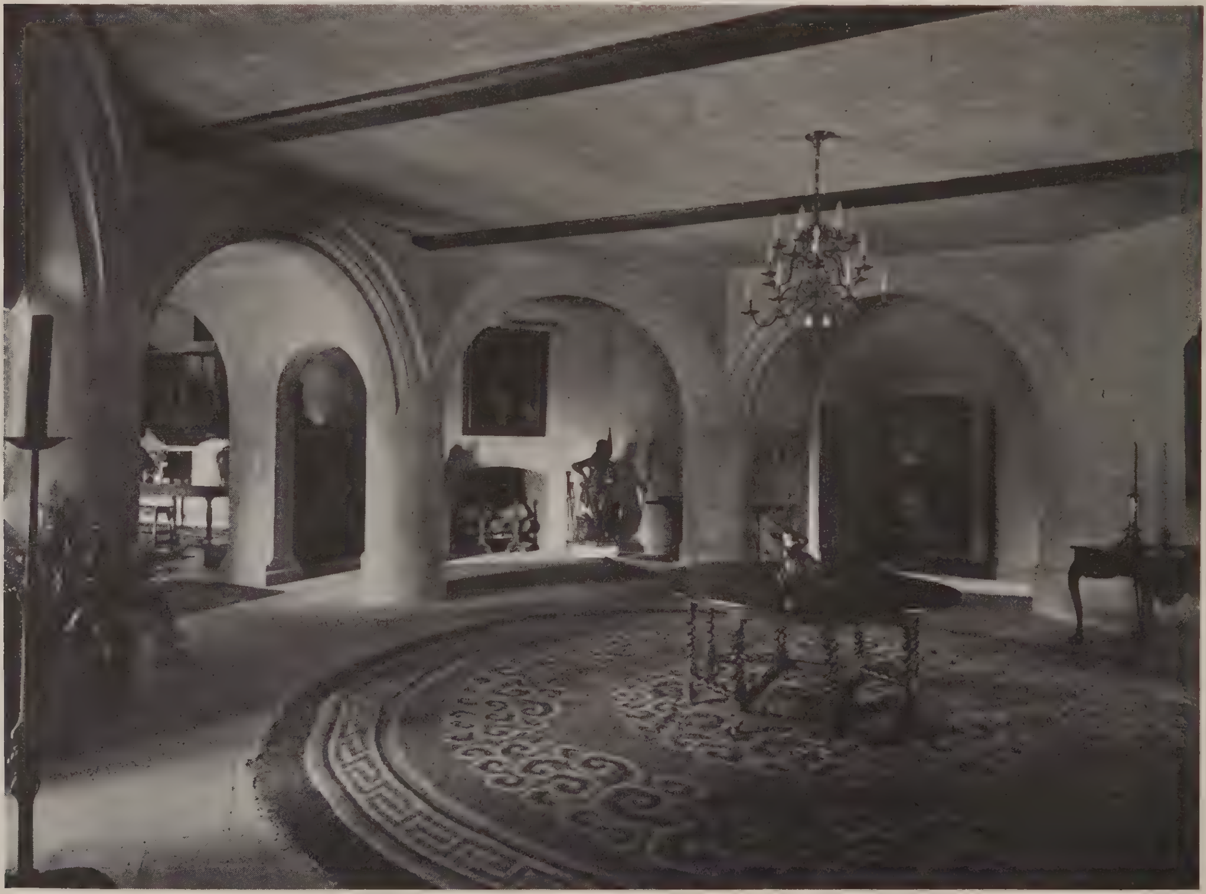
Stairway from Main Hall



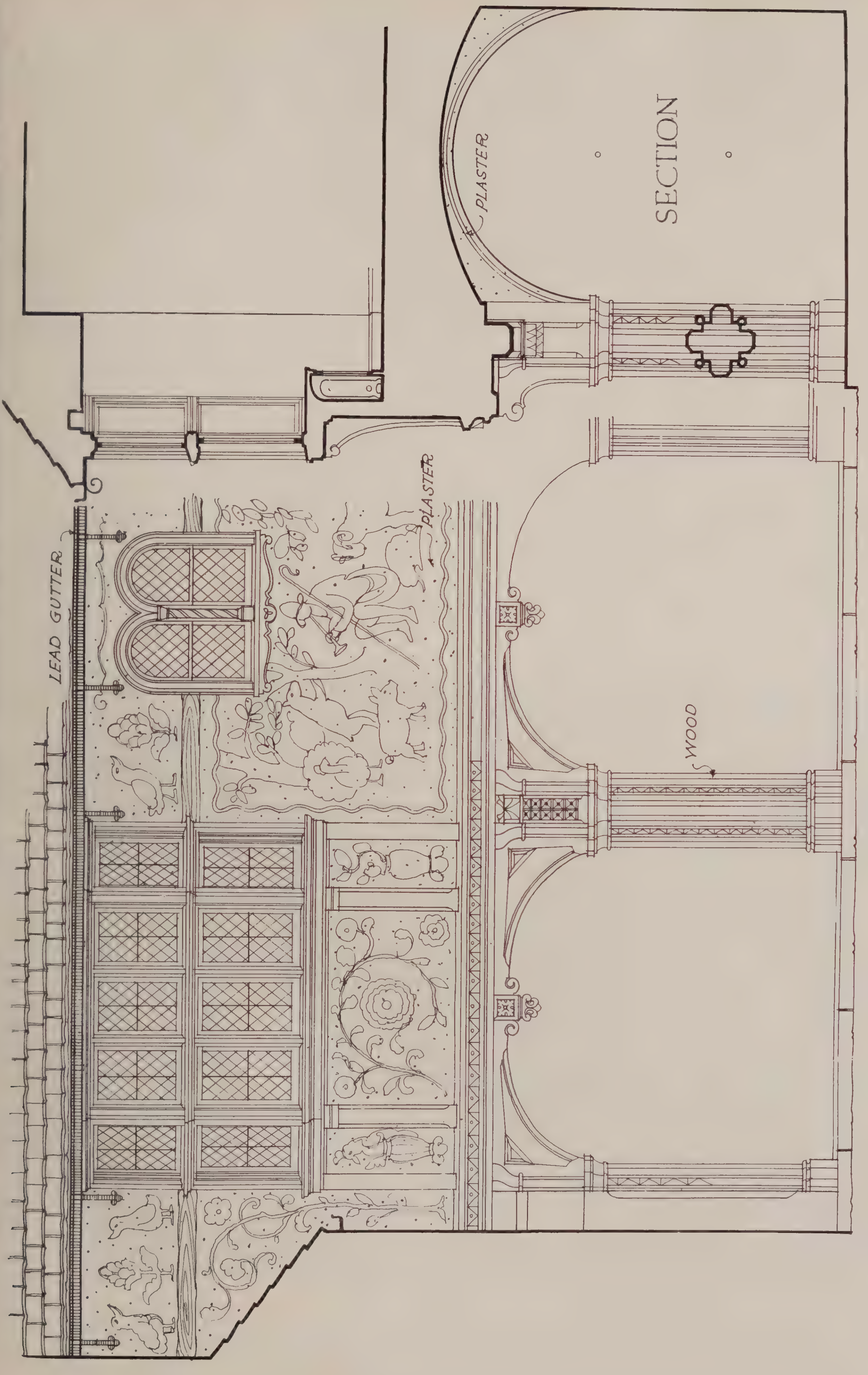
STAIR HALL ELEVATIONS
CARLL TUCKER HOUSE
WALKER & GILLETTE ARCHITECTS

location. In the windows of the first floor the leading is in the form of diamonds and lozenges, while in the windows of the second floor the leading is simpler in character showing only a plain, rectangular pattern. A variation of the English custom of using casement windows throughout is found in the windows of the second floor, where for the most part they are double-hung. Heavy English slate, varying in width and color, as well as thickness, gives fine texture and character to the many roofs. The chimneys, which are also worthy of note, are excellent examples of the style popular in England during the Tudor period.

Although in the design of the Carll Tucker house, many liberties have been taken with the Tudor style of architecture, these variations in no way detract from the picturesque charm and consistency of its design. In this splendid manor house, among the many carefully treated features, the sleeping porches are perhaps the most successful. These special second story porches, which have become an almost indispensable part of the modern country house, have here been so admirably made an integral and consistent part of the structure of the house itself, that they are in no way noticeable as a modern detail grafted onto an ancient style of architecture. The sleeping porch above the living room porch appears like a small and natural gable at the end of that wing. The sleeping porch above the dining porch is so completely built into the second story of the building, that, except for the number and size of its mullioned windows there is no suggestion of a porch. Above the entertaining little octagonal breakfast room, the sleeping porch with its mullioned windows has been built under a continuation of the roof of the service wing, in such a way that here also there is no suggestion of a porch. The long low roofs of this house are inconspicuously broken by a few small slate-covered dormer windows. Where the main walls of the house are carried up above the eaves to form important gable dormers, stucco has been logically used for the sides of these dormers and slate for their roofs. Each of the principal elevations shows unsymmetrical and dissimilar elements, which is one of the characteristic features of Tudor design. This dissimilarity in the elements of the design adds much to the picturesqueness of the building, especially where such care is used in the proportion and scale of the various masses and details, as is the case here. The entrance porch, a one-story gabled structure, in limestone, is the strong and dominant note in the elevation of the entrance front. In close connection with this porch entrance, a massive chimney breaks the roof line in picturesque fashion. The windows on the first floor of the entrance front are small in scale, thus logically indicating the lesser importance of the rooms within, as well as emphasizing the



The Entrance Hall



· DETAILS OF SOUTH WALL IN COURT ·

· SCALE ONE QUARTER INCH EQUALS ONE FOOT

CARLL TUCKER HOUSE

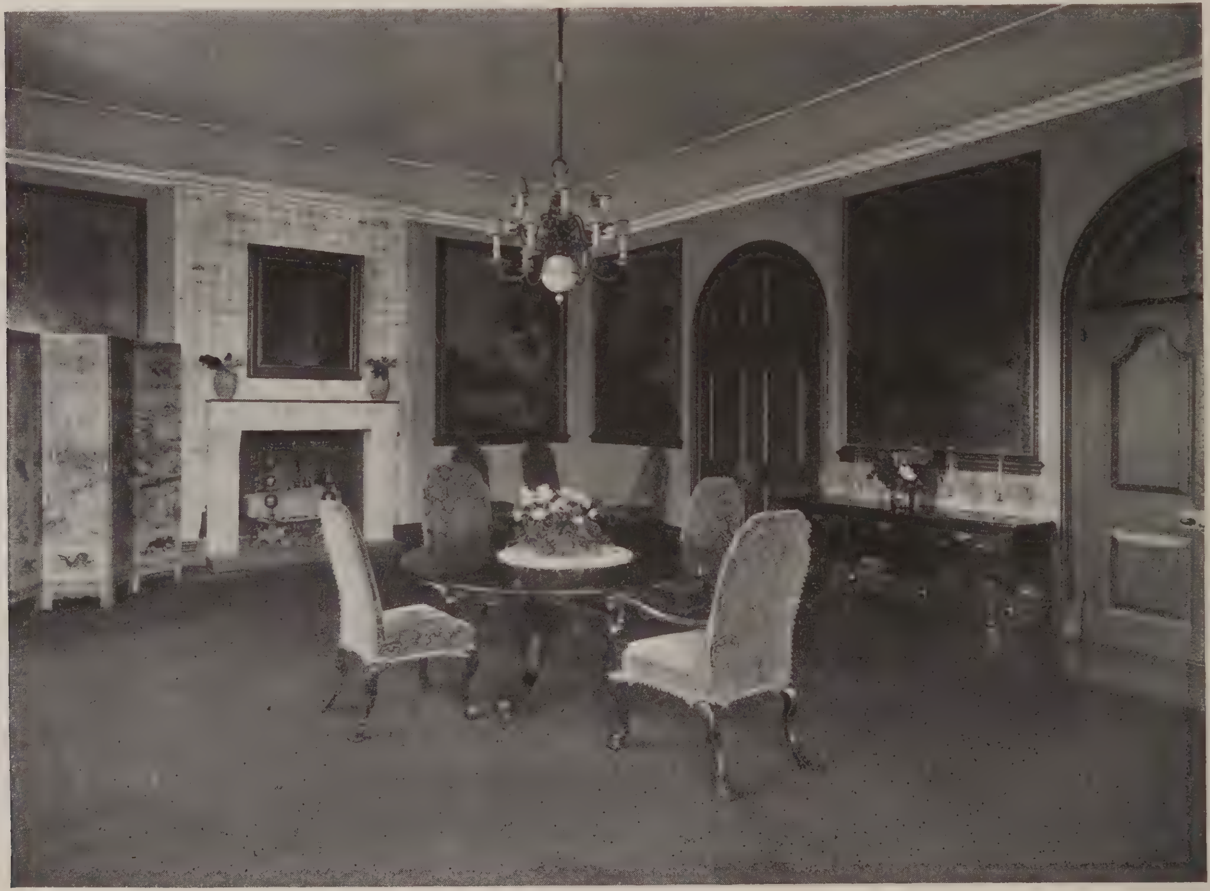
· WALKER & GILLETTE · ARCHITECTS ·

larger and more important windows of the principal bedrooms on the floor above. Practically all of the windows have cut stone lintels, mullions and sills, except in the service wing, where they are treated in a simpler manner. The second floor of this wing, the walls of which are covered with stucco, projects over the stone walls of the first floor in typical Tudor fashion, giving a strong, virile effect.

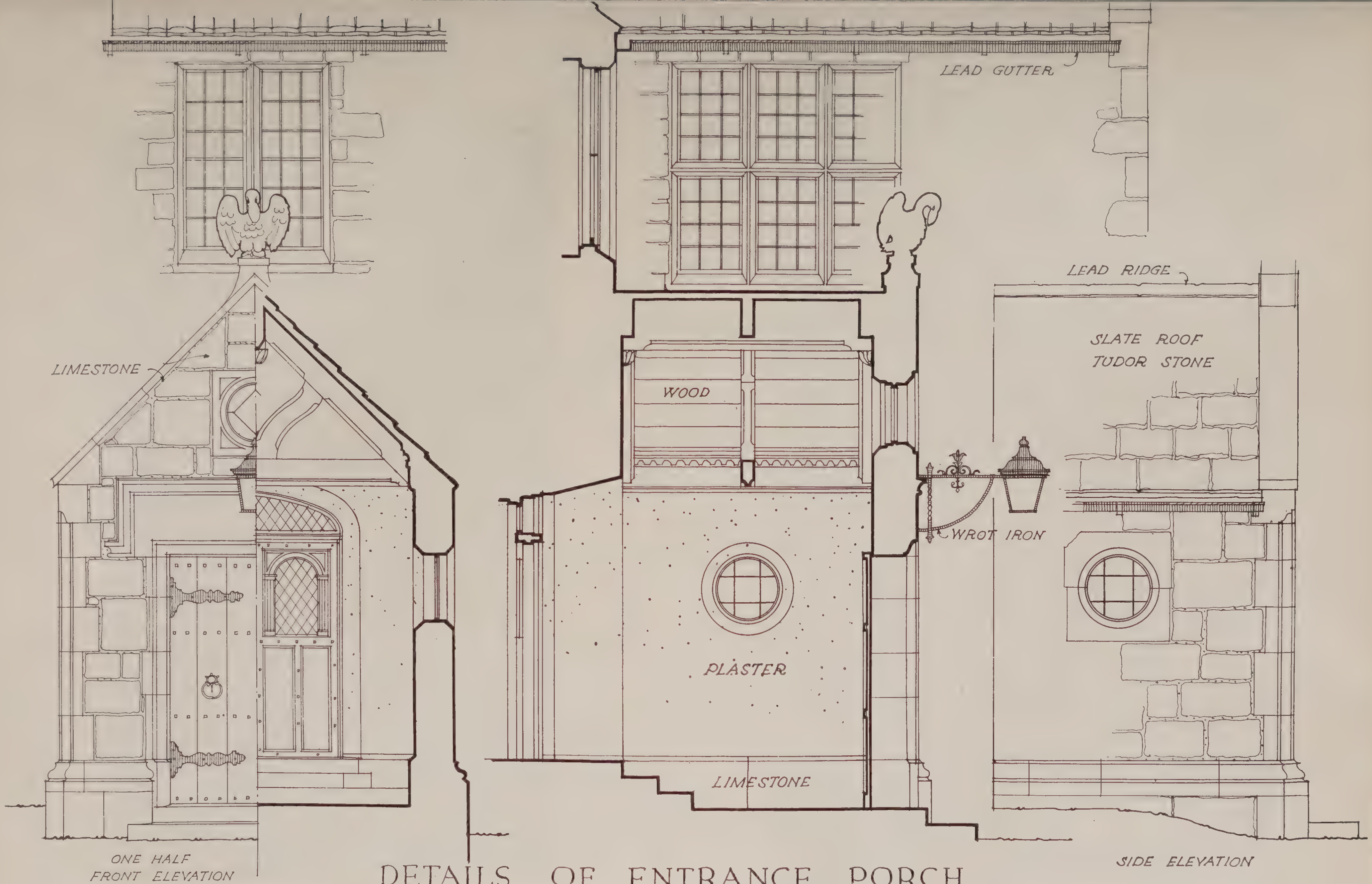
From every point of view the house presents interesting roof lines broken by picturesque chimneys, which give the necessary vertical note in contrast with the horizontal lines of the eaves and window groups. The diversity of Tudor details used for the various elements of the exterior design gives a refreshing vitality and interest to the several facades of the house. Although the building looks large and rambling from almost any point of view, the very carefully studied scale and location of window and door openings, and chimneys produce a domestic quality in the design which relieves it of all effect of ostentation and pretension.

The detailed drawing on page 11 shows the elevations of the entrance hall, corridor and stairway. The treatment of this hall and staircase, unusual as it is, is characteristic and in keeping with the Tudor style in which this house is designed. The stone arches and massive round stone piers of the octagonal entrance hall are rugged and stern in character, and the carving of the newel posts and balusters of the stairs is of the same simple and heavy type. The drawing on page 13 shows details of the cloister and south wall of the court. Here the heavy piers, formed by engaged colonnettes, suggest Gothic influence often found in Tudor designs. The parging of the wall above the cloister is exceedingly interesting in pattern as well as appropriate to this style, forming a pleasant contrast to the severity of the plain plaster walls of the two other sides of this south court, balanced in design as it is by high, mullioned casement windows over the two end arches, and contrasting with the small double-arched window above the center arch. Page 15 shows details of the entrance porch, a free-standing, gable roofed little structure, possessing charm in its fine proportions and interesting details. It serves as a weather-break for the inner door, and opens directly into the main entrance hall. This detail also shows the characteristic stonework and the slate roof.

The architecture and decoration of the interior are carried out in a manner admirably consistent with the exterior design. Rugged simplicity and dignified restraint are the dominating qualities of all the principal rooms. The octagonal entrance hall has massive limestone piers and arches of such size as to suggest the interior of some old Norman castle or convent. The baronial fireplace in this entrance hall as well as the main staircase which opens into the arcaded corridor leading from this hall to the



The Dining Room



DETAILS OF ENTRANCE PORCH

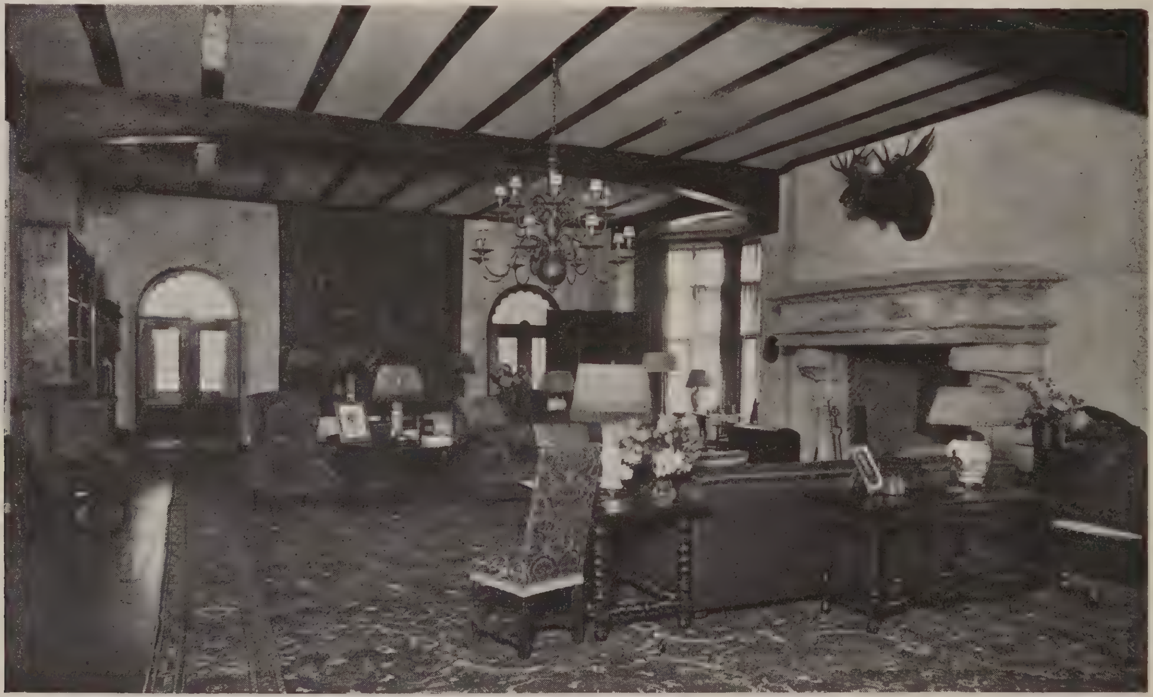
SCALE ONE QUARTER INCH EQUALS ONE FOOT

CARLL TUCKER HOUSE

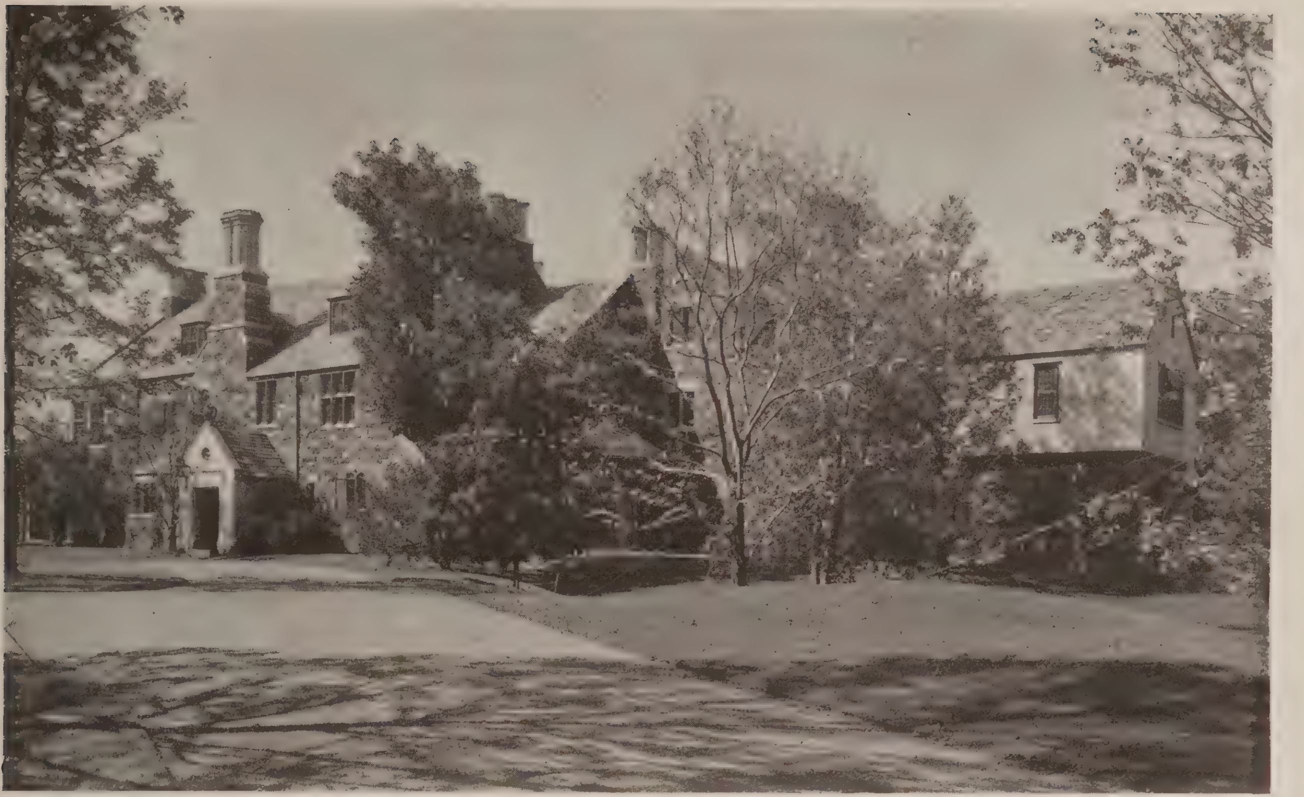
WALKER & GILLETTE ARCHITECTS

living and dining rooms, show the same ruggedness and strength of detail. The antique plaster of the walls of both entrance hall and corridor still further adds to the effect of severe simplicity and stern restraint of the interior architecture. Each of the principal rooms is designed with individual care and study. The main living room, with its antique plaster walls, beamed ceiling and massive stone mantelpiece, repeats the strong character of the entrance hall. Strong color notes are introduced in this room by antique tapestries on the walls, the rich tones in the large rug on the floor, and in the various materials used for the upholstering of the furniture. Chairs and tables of different periods, such as Elizabethan, Queen Anne, and William and Mary, give a pleasingly varied and personal touch to the furnishings of this great room. In the library, on the other hand, is found a delicately executed example of the interior architecture of the early English Renaissance period, carried out in pine, or deal, as it is called in England. The coloring in the gay printed linens, used for the hangings and furniture coverings, tremendously brightens and relieves the formality of this dignified room. Shelves for books are built into the paneled walls on all sides of the room, the books themselves adding another colorful and decorative note. The rich tones of the rug also contribute much to the color comfort of the room. A happy realization on the part of the architects that the proper and fearless use of color adds greatly to the subconscious pleasure and comfort of the occupants of a room, is seen in the treatment of every room in this house.

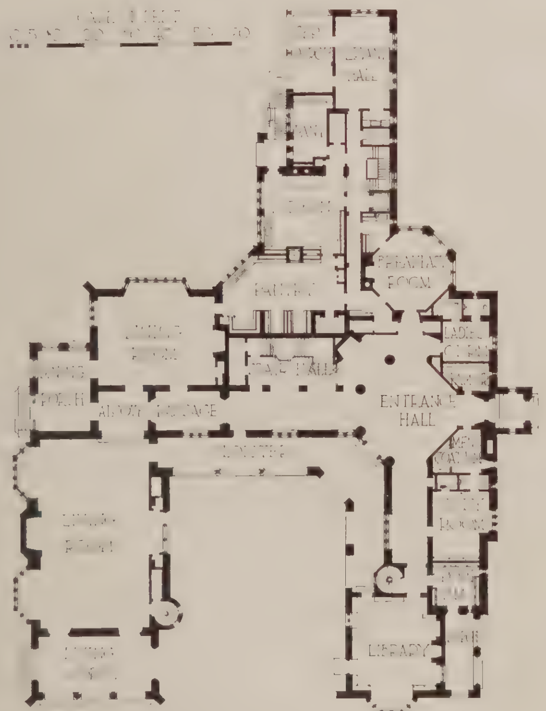
The dining room, which is splendidly proportioned, is decorated in an unusual and delightful style suggestive of old Dutch interiors, such as are often found in the paintings of Vermeer. Large decorative landscapes of Dutch origin have been set as panels in all of the large wall spaces. Antique Dutch tiles in varying shades of blue are used for the interior trim of the windows, as well as for the facing of the fireplace. The use of Dutch tiles for fireplace facings has been popular in this country and England since the seventeenth century, but the use of such tiles for the enframement of window is very rarely found in this country. The Dutch feeling is still further carried out in the furnishings and woodwork of this room. The chairs and long sideboard show strong Dutch influence, which is again noticeable in the interesting shape of the panels of the arched doors leading into the main hall. The plaster of the walls as well as the ceiling has been painted in colors harmonious with the decorative wall panels and floor covering. Another room which must not be overlooked in any complete description of this house is the delightful octagonal breakfast room, with its umbrella-vaulted ceiling and antique doors of varying design. This room also has Dutch atmosphere, not only in the flagstone floor, but also in the unusual chairs and interesting old dresser. Whether or not it was the conscious intention and purpose of the architects to produce in these interiors of this country house of Mr. Carll Tucker an adaptation of some of the delightful English rooms in which Dutch influence strongly predominates, this impression has been most successfully and pleasingly accomplished. The Dutch influence on English architecture, which was brought to England by William of Orange in 1689 was more or less felt not only throughout his reign but even in later years, when it strongly affected the early work done in the Georgian period of English architectural design.



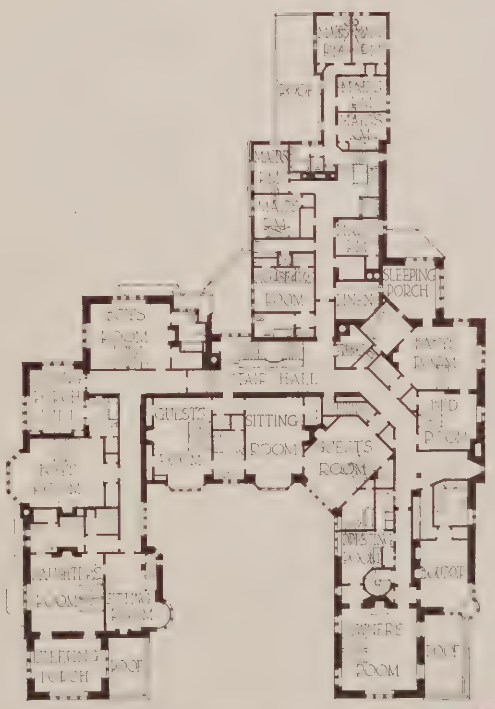
The Living Room



ENTRANCE FRONT



FIRST FLOOR PLAN



SECOND FLOOR PLAN

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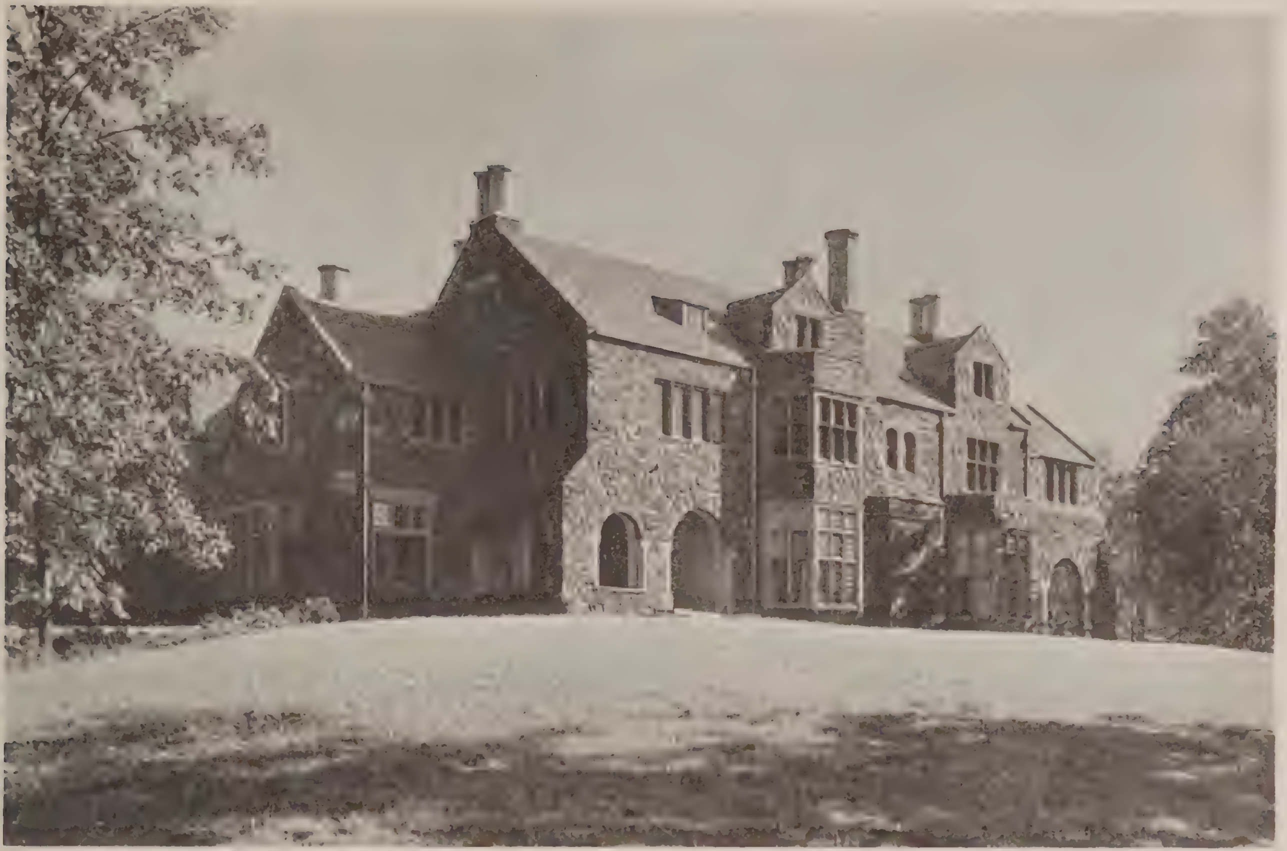
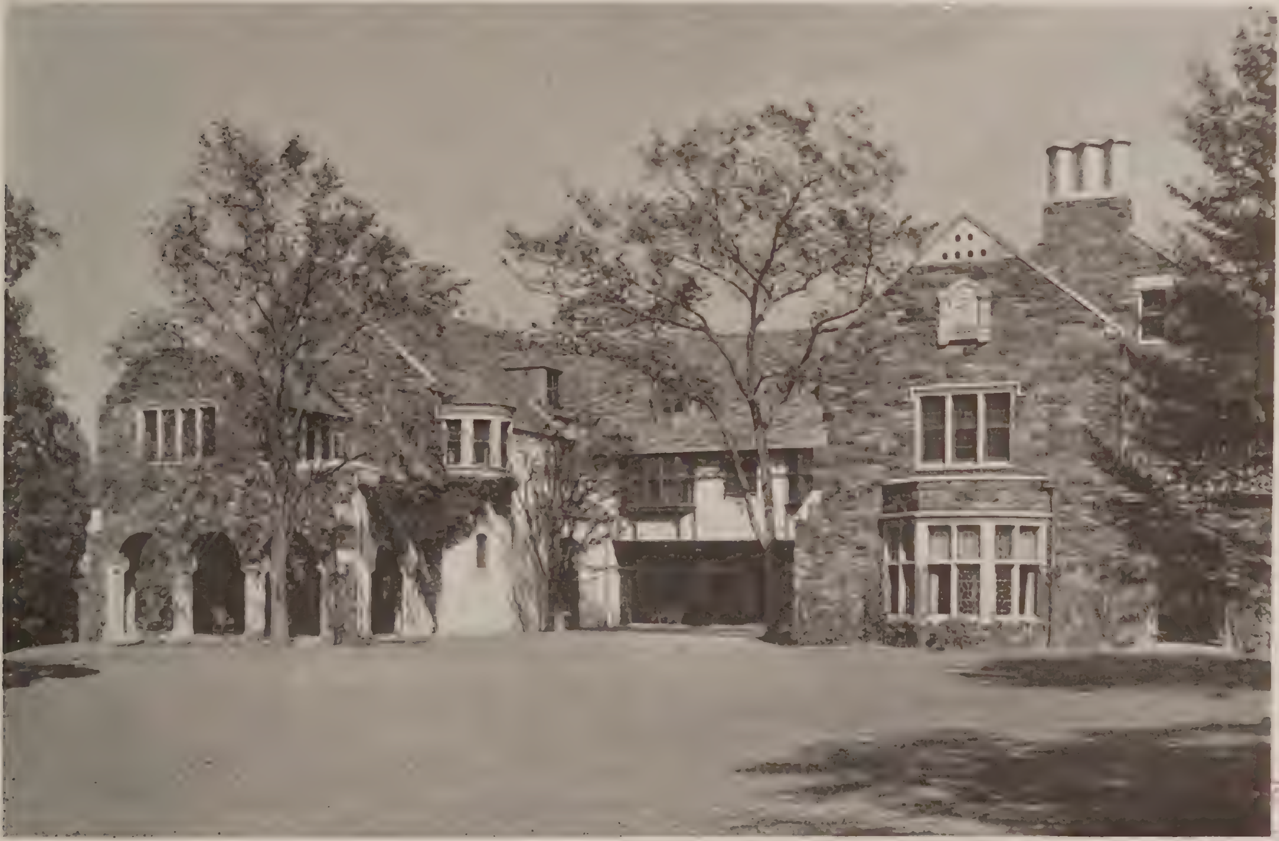
Photos. John Wallace Gillies

HOUSE OF CARLL TUCKER, ESQ., MT. KISCO, N. Y.

WALKER & GILLETTE, ARCHITECTS



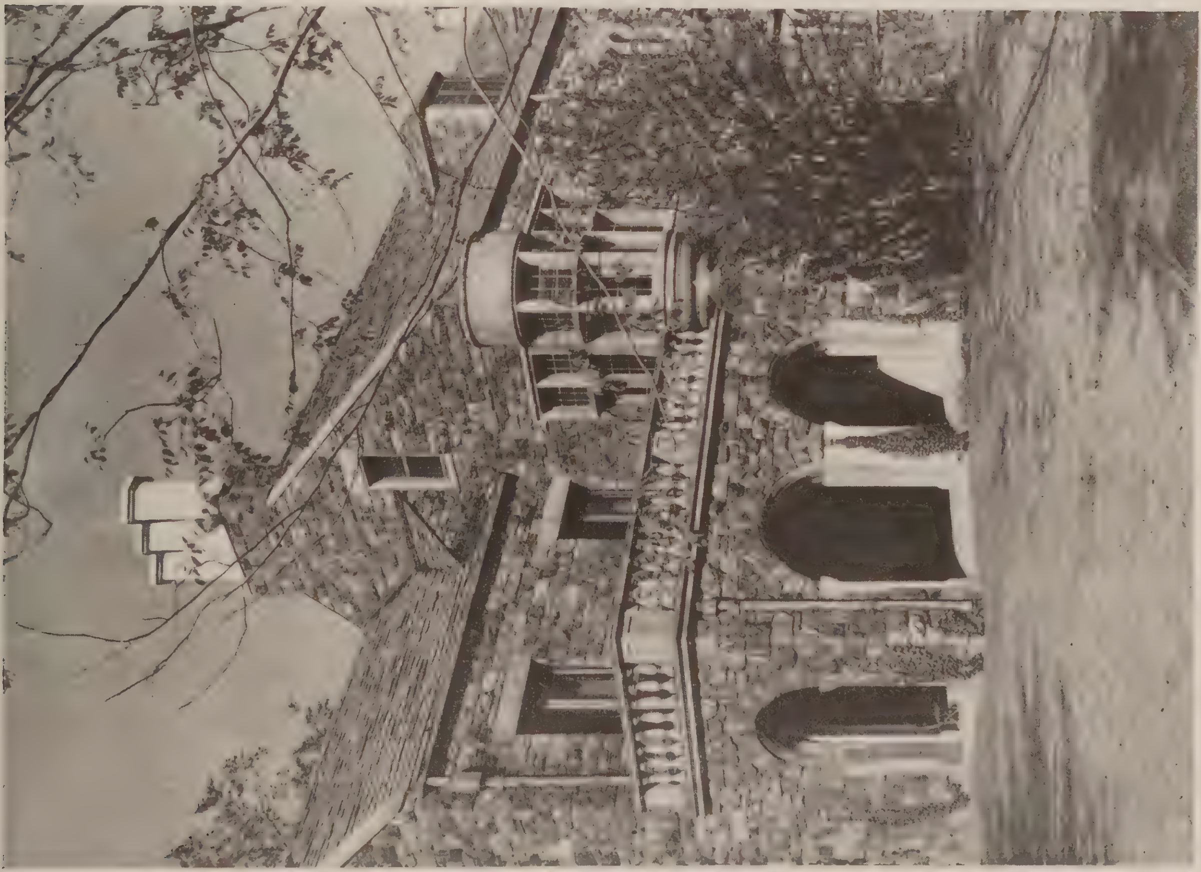
NORTHWEST ELEVATION



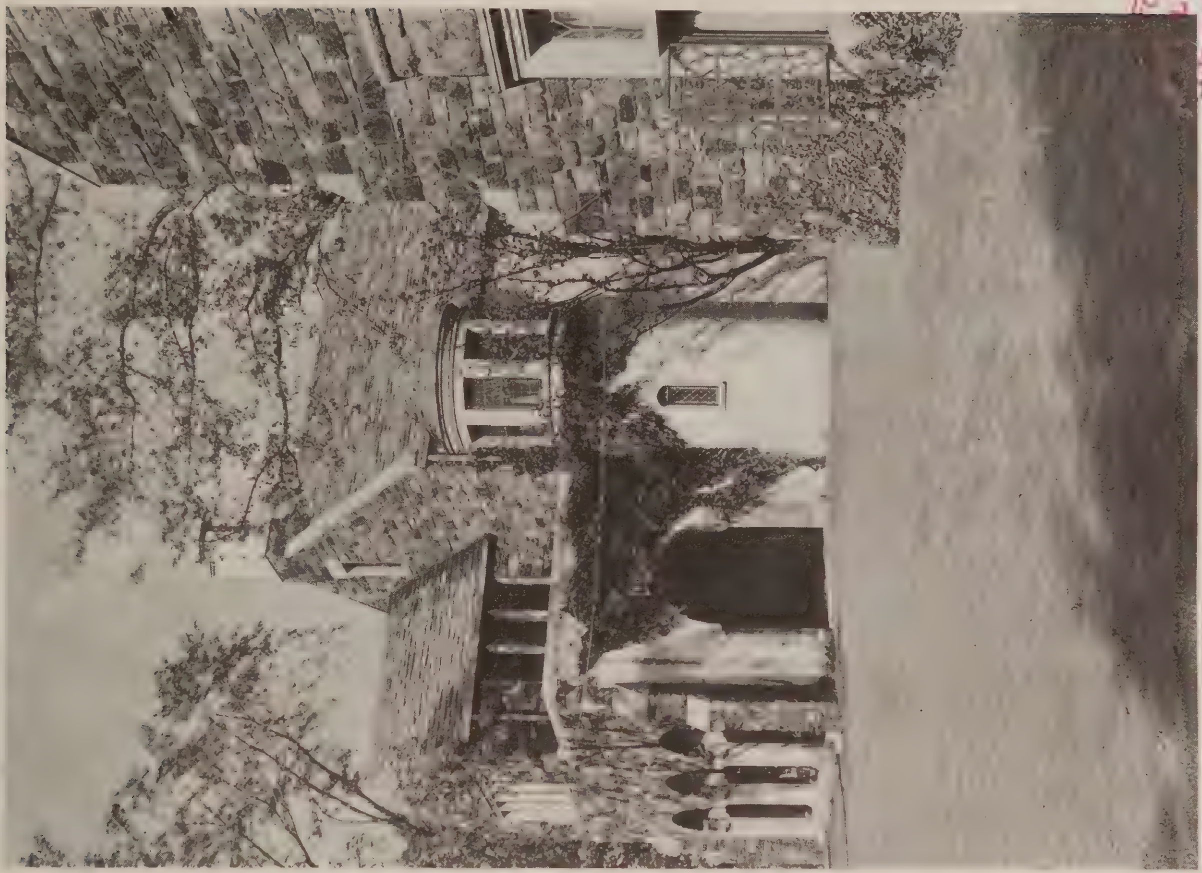
SOUTHWEST ELEVATION

HOUSE OF CARLL TUCKER, ESQ., MT. KISCO, N. Y.

WALKER & GILLETTE, ARCHITECTS



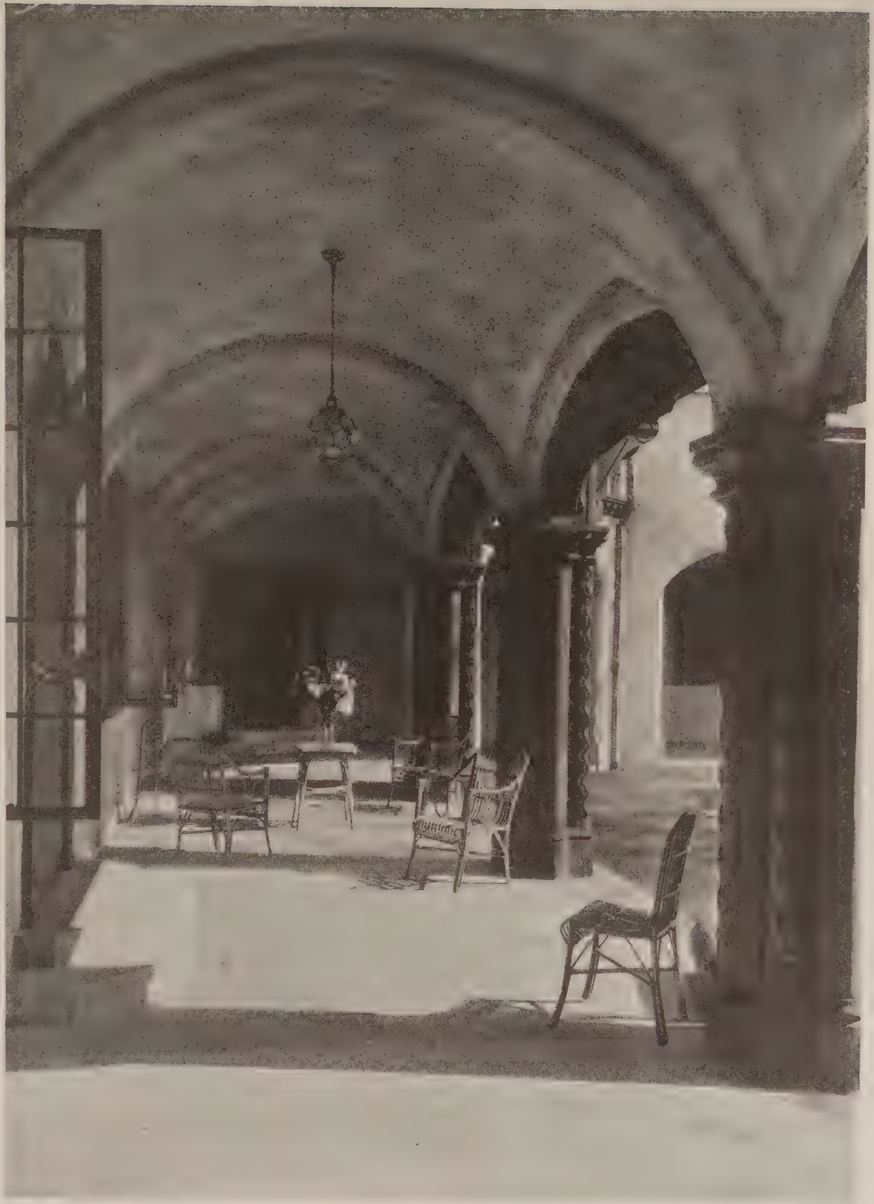
SOUTHEAST PORCH



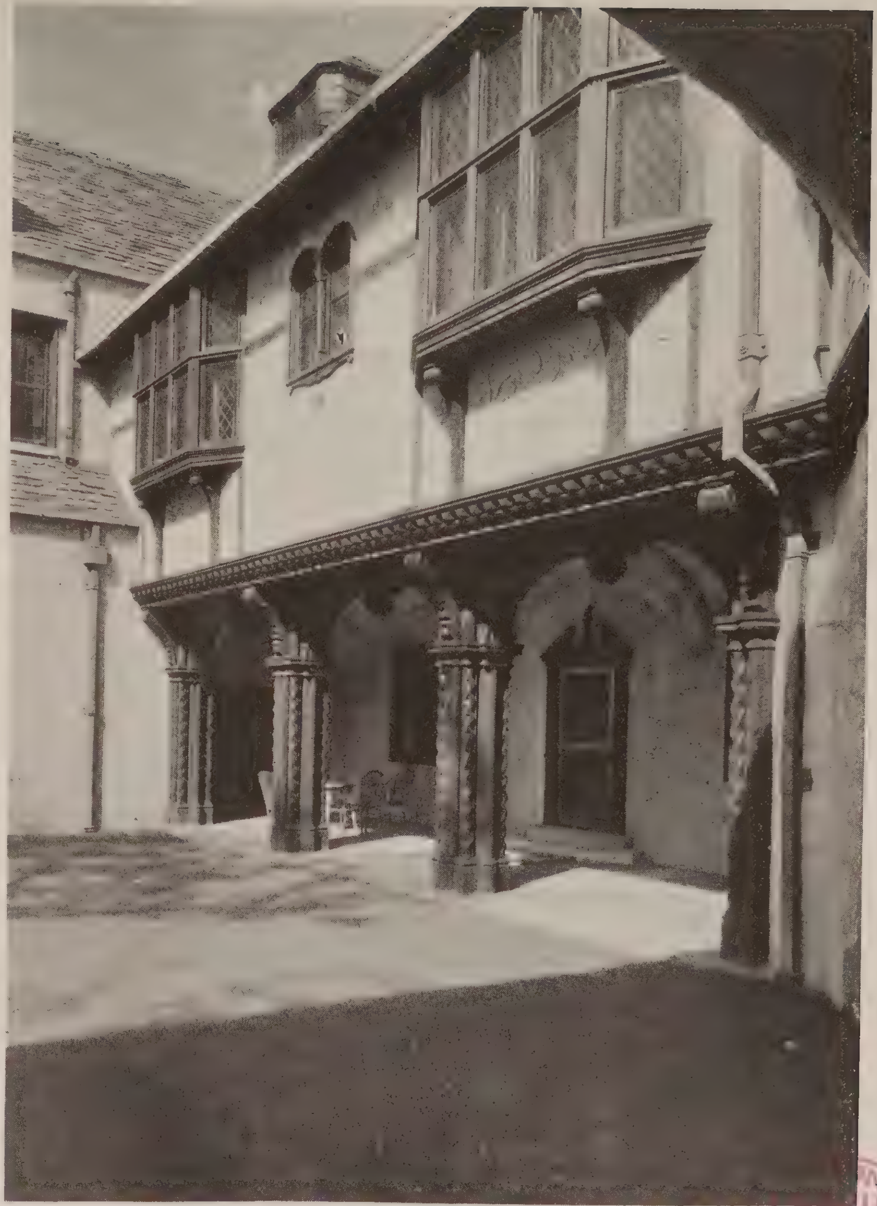
LIVING ROOM PORCH

HOUSE OF CARLL TUCKER, ESQ., MT. KISCO, N. Y.

WALKER & GILLETTE, ARCHITECTS

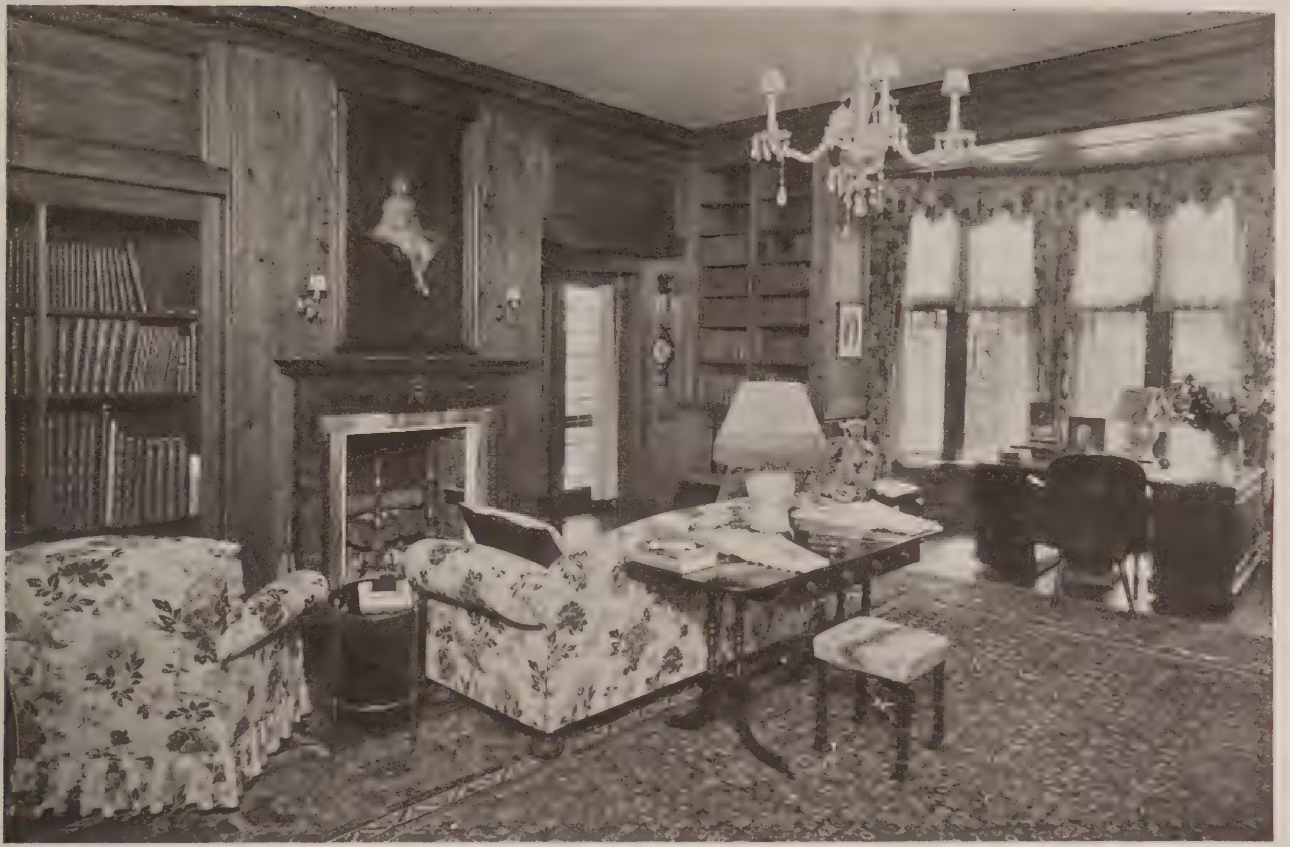


INTERIOR OF SOUTH CLOISTER



EXTERIOR OF SOUTH CLOISTER

HOUSE OF CARLL TUCKER, ESQ., MT. KISCO, N. Y.
WALKER & GILLETTE, ARCHITECTS



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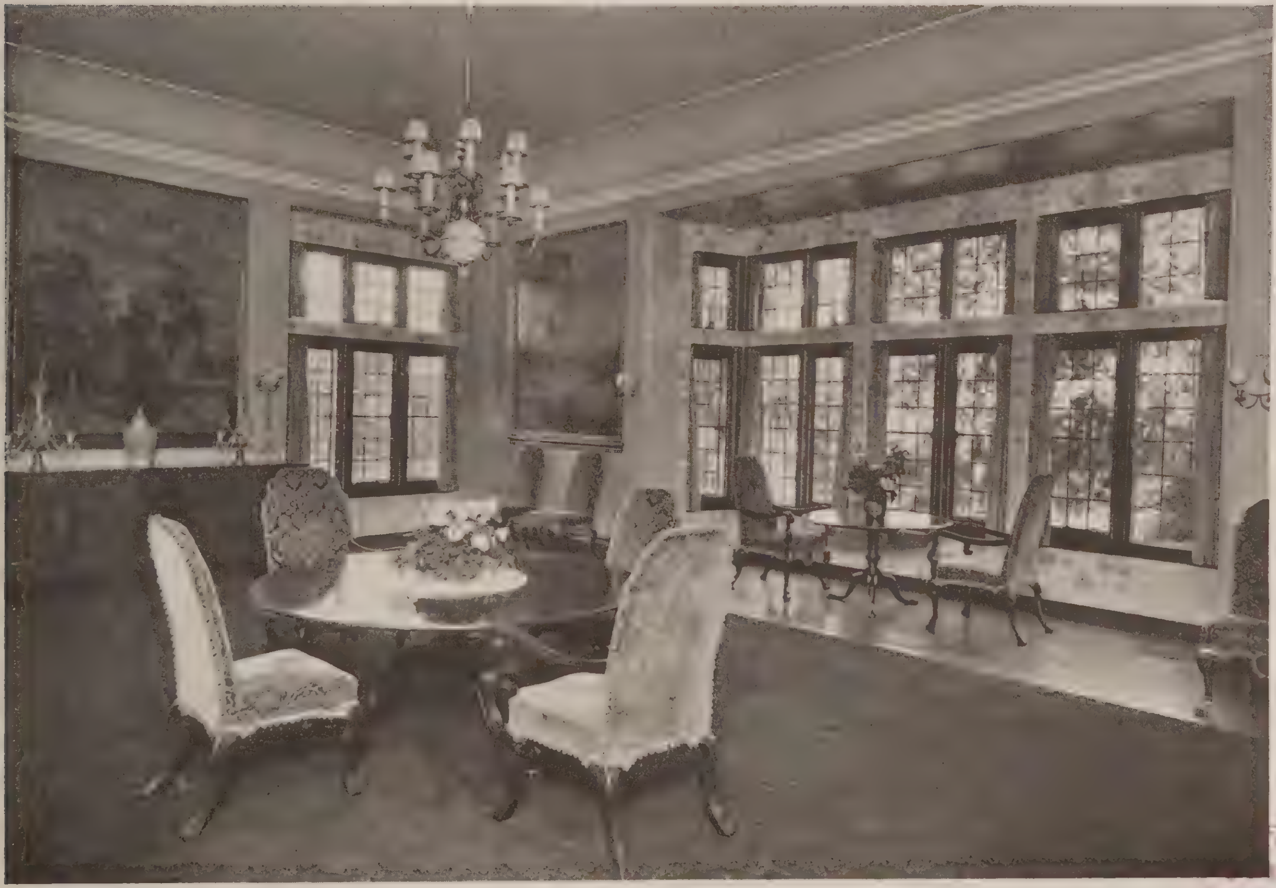
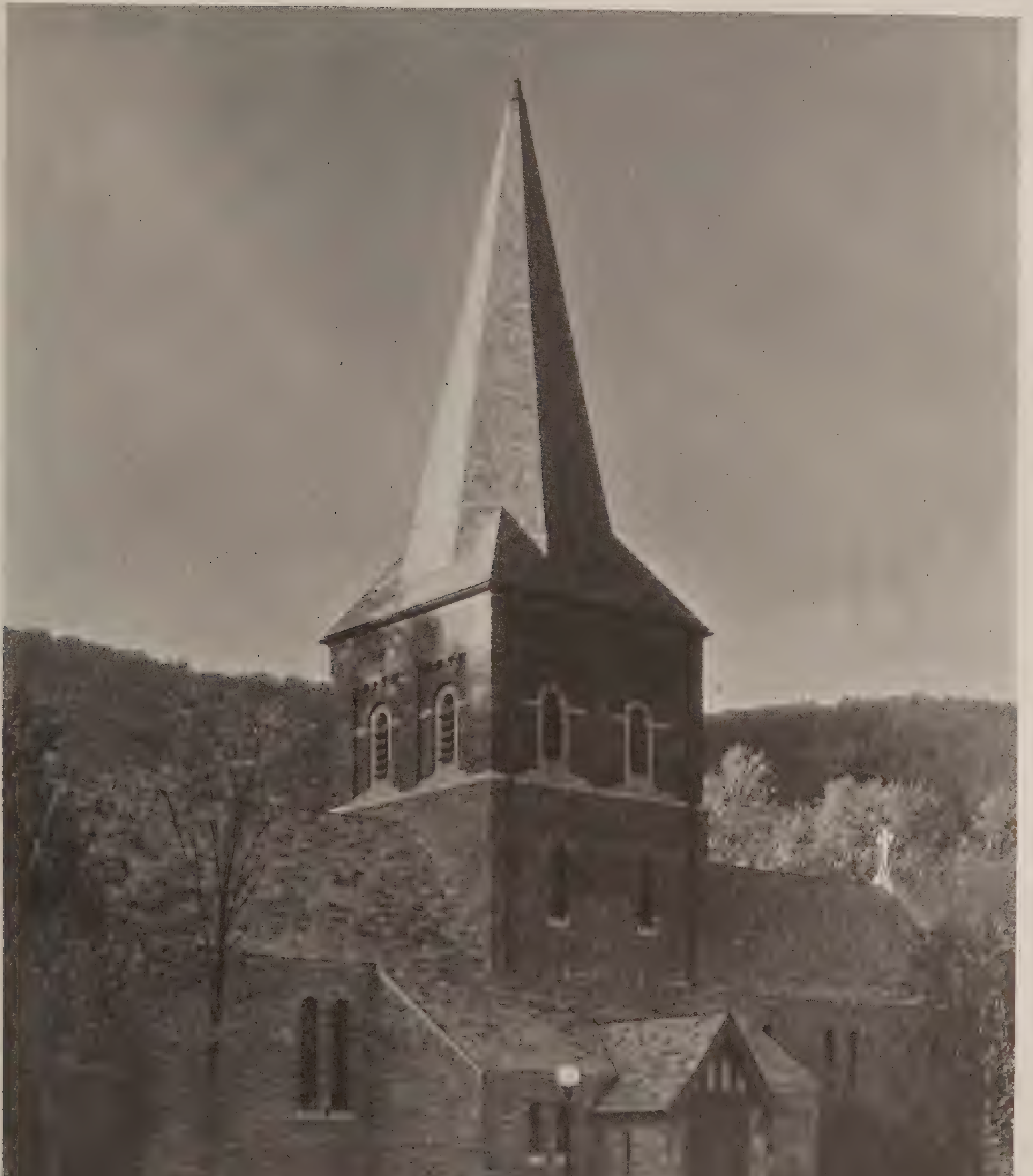


THE DINING ROOM

HOUSE OF CARLL TUCKER, ESQ., MT. KISCO, N. Y.

WALKER & GILLETTE, ARCHITECTS



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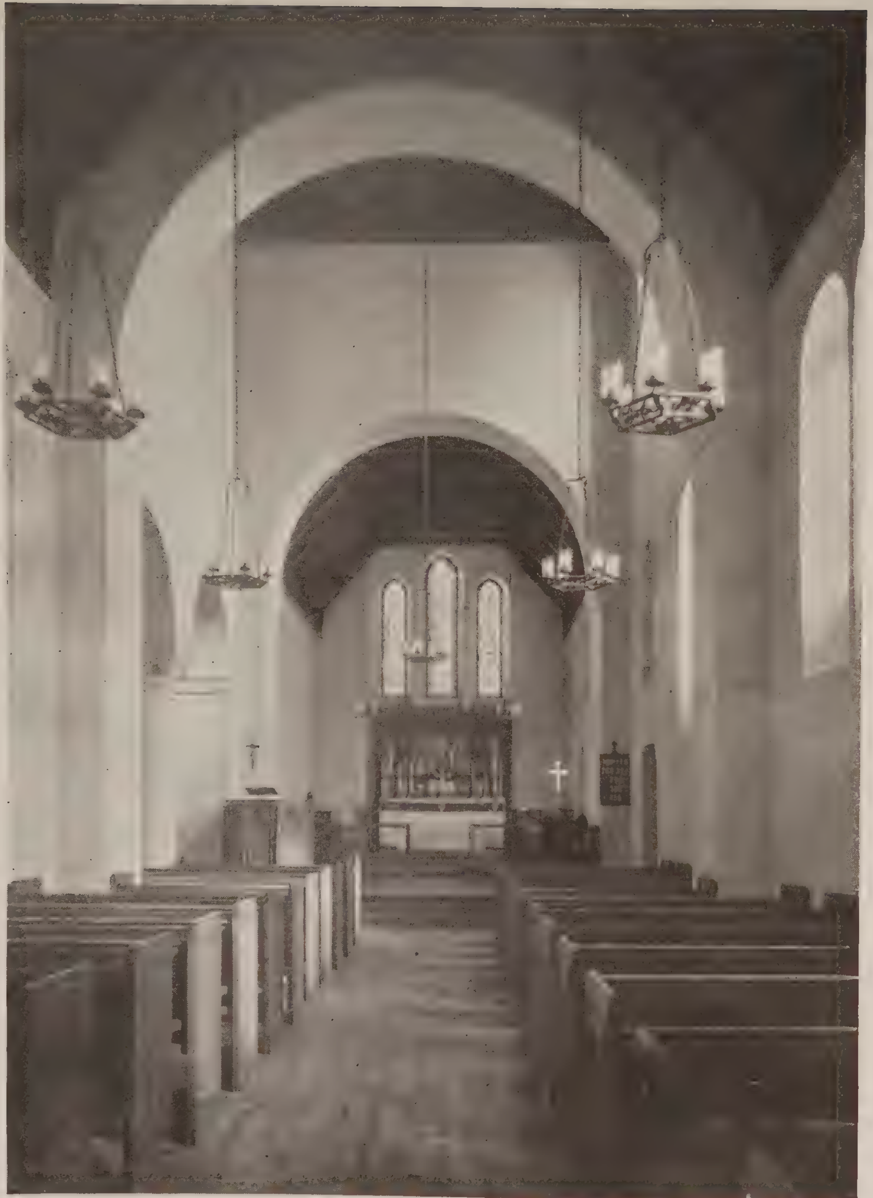
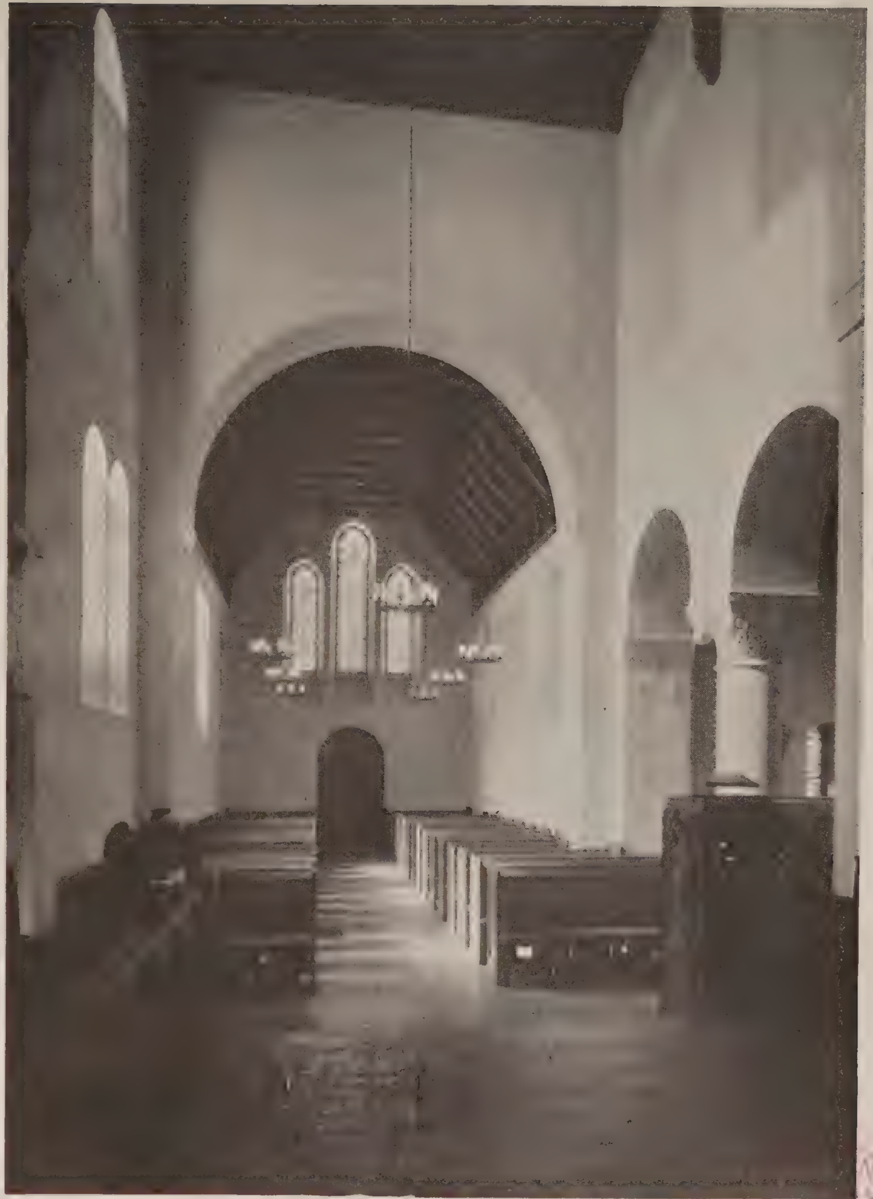
Photos. Paul J. Weber

ST. JAMES' CHURCH, LAKE DELAWARE, N. Y.
CRAM & FERGUSON, ARCHITECTS



VIEW OF NAVE AND CHOIR



NAVE SEEN FROM THE CHOIR

ST. JAMES' CHURCH, LAKE DELAWARE, N. Y.
CRAM & FERGUSON, ARCHITECTS

The Mosaic Flooring of Santa Prassede, Rome

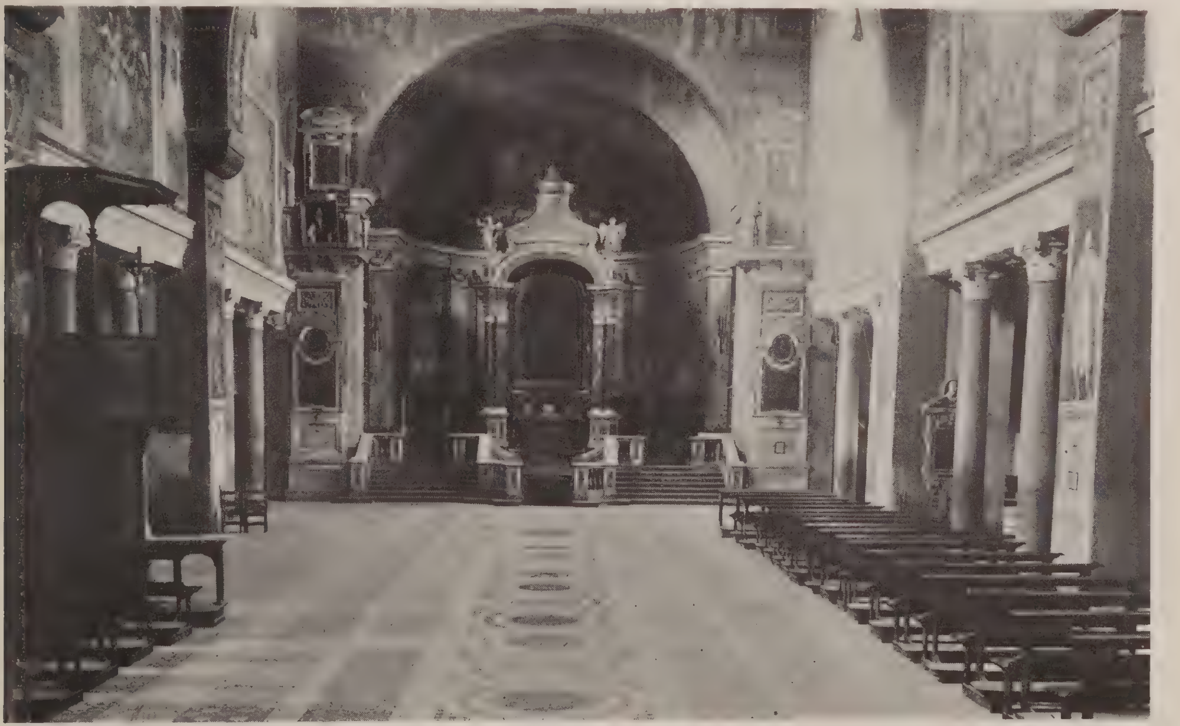
By ALFRED MAUSOLFF

With Measured Drawings by the Author

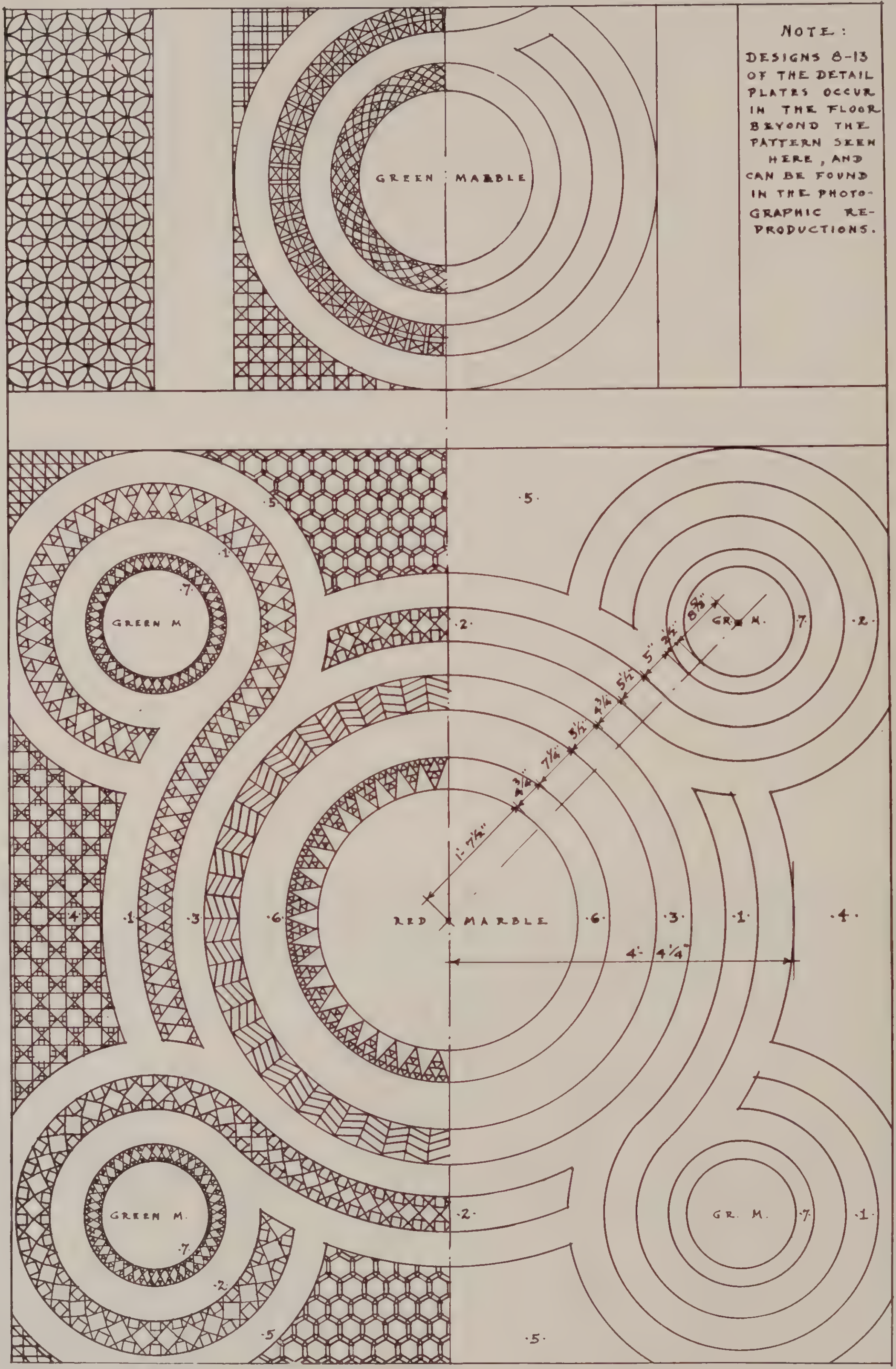
OF all types of mosaic flooring *opus Alexandrinum* must have been one of the most satisfying from the point of view of the mediæval architect who desired not merely to heighten the interest of an otherwise commonplace church pavement, but was bent upon emphasizing the principal axes of his plan and on leading the eye of the observer up to the center of interest and worship, the high altar. Examples of *opus Alexandrinum* floors are extremely common throughout Italy, where this art reached its zenith during the thirteenth century. Such Roman churches as San Lorenzo, Santa Maria Maggiore, Santa Maria in Trastevere, and San Marco are justly famed for their pavements. There are countless other smaller churches, however, which can boast of equally fine mosaic floors, but which are less frequently visited by the hurried traveler. Among these might well be reckoned Santa Prassede, on the Esquiline.

This church, the oldest part of which dates back as far as the ninth century, has naturally been subjected to frequent alterations and additions, many of them most deplorable; but one detail of its most recent restoration, undertaken by the Italian government during the World War, must certainly be pronounced a distinct success,—the repairing of its floor in *opus Alexandrinum.* It is a masterpiece, both from the point of view of general design and the color and patternwork in the mosaic fields. Even the illustration of the interior given here emphasizes the feeling of almost irresistible attraction of the eye to the high altar. Again and again one returns to this colorful floor with its prominent interlacing bands of light marble and its fields of red and green porphyry, which glow in soft, mellow contrast.

From these illustrations it will be evident that there is actually very little difference in the color values of the red and the green porphyry. They are interchangeable in their respective patterns and are relied upon to furnish the darker tones, while a light gray, a creamy white, and a buff orange produce the light areas and give the whole ensemble a pleasing sparkle. The individual *tesseræ* vary a great deal in size, some being as small as ½ inch, others as large as 4 inches or more in dimension, according to the design, but on the whole the scale of the units is very much finer than what we are accustomed to use today. It will also be noticed that there are slight variations and irregularities in the dimensions of similar units or the joints between them. The *tesseræ,* it would seem, were never intended to be laid with the machinelike accuracy which is the pride of the mechanic of this generation. The fact that each piece of marble had to be laboriously sawed by hand in itself prevented this to a large degree, and added not a little to the success of these floors which, for simplicity, dignity, and beauty have seldom, if ever, been surpassed.



The Colorful Floor of Santa Prassede



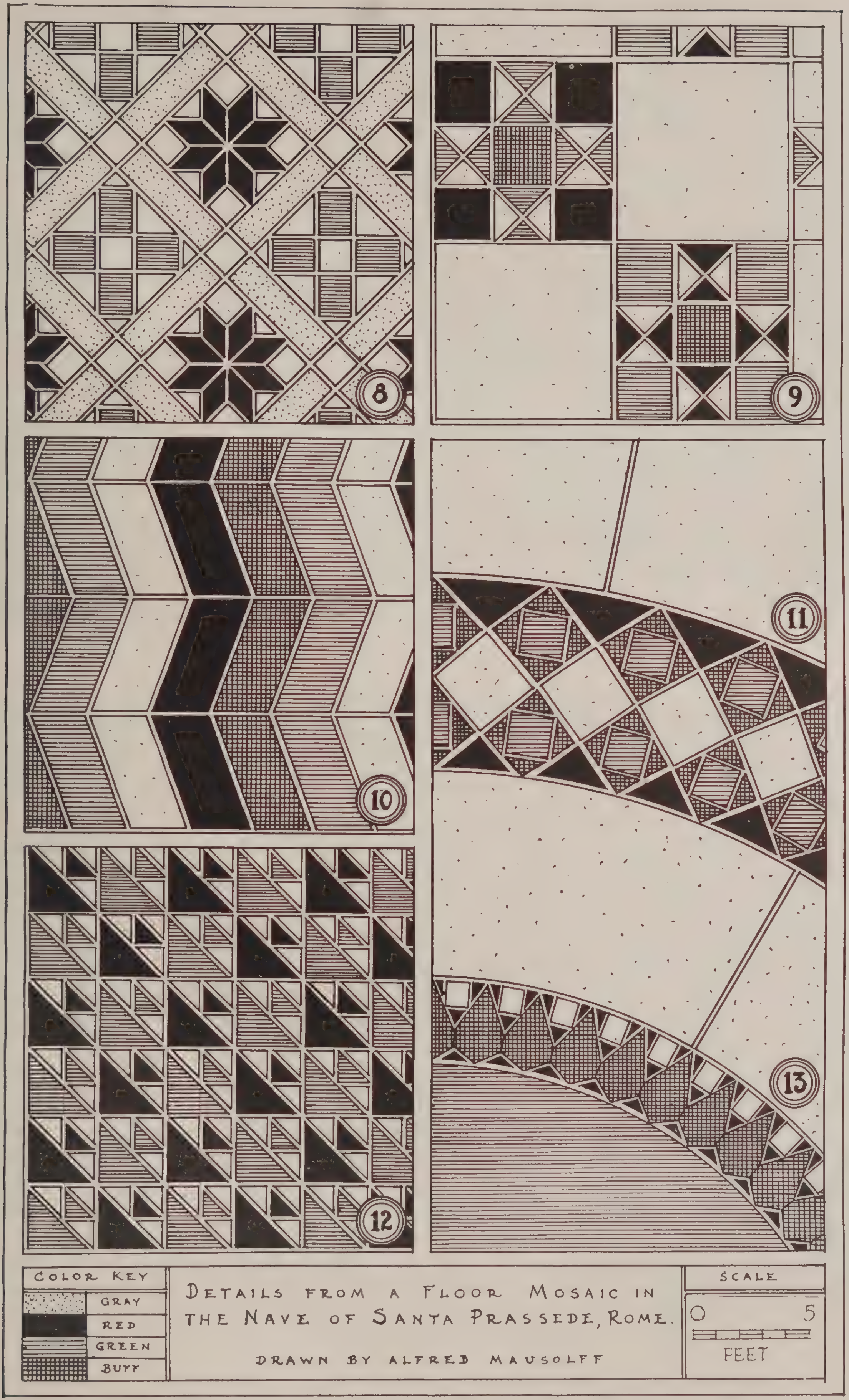
NOTE: DESIGNS 8-13 OF THE DETAIL PLATES OCCUR IN THE FLOOR BEYOND THE PATTERN SEEN HERE, AND CAN BE FOUND IN THE PHOTOGRAPHIC REPRODUCTIONS.

NUMBERS REFER TO THE PLATES OF DETAILS

PATTERN OF A FLOOR MOSAIC IN THE NAVE OF SANTA PRASSEDE, ROME

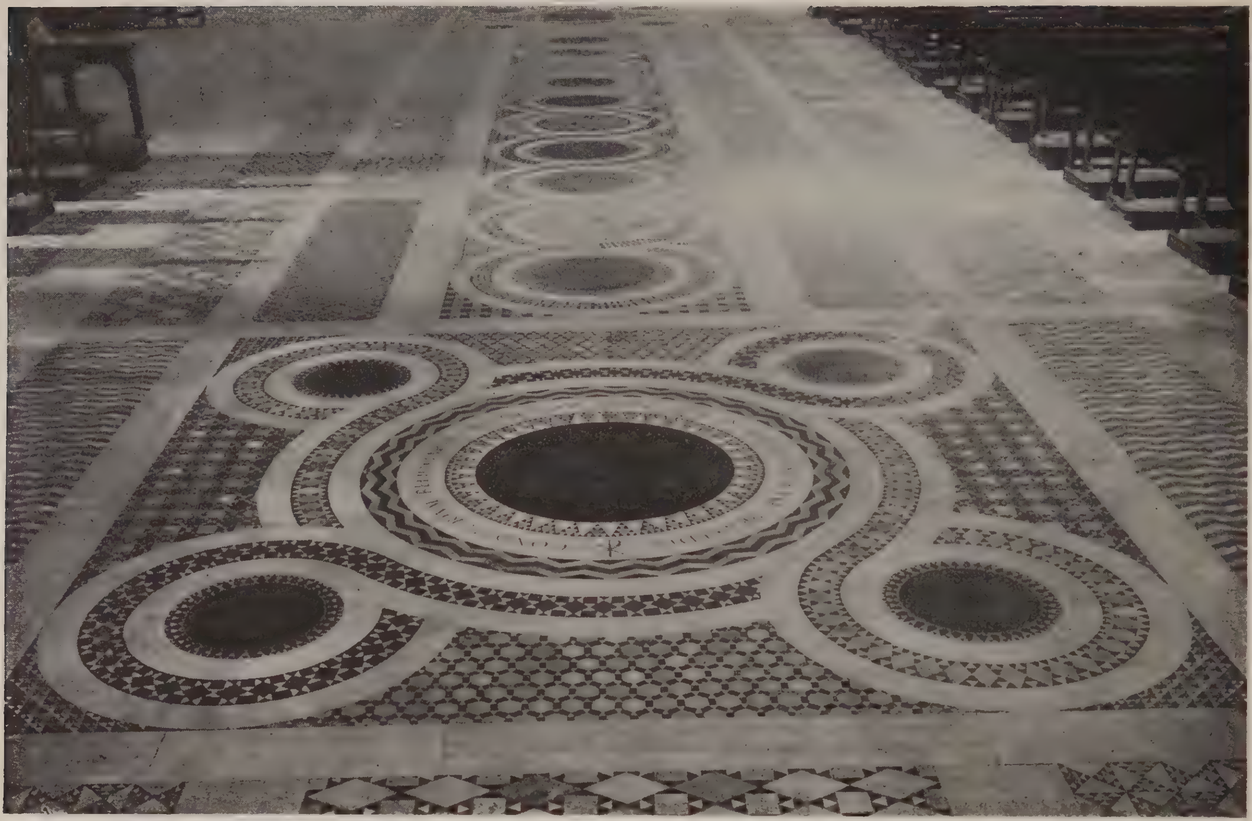
DRAWN BY ALFRED MAUSOLFF

SCALE
0 1 2 3
FEET

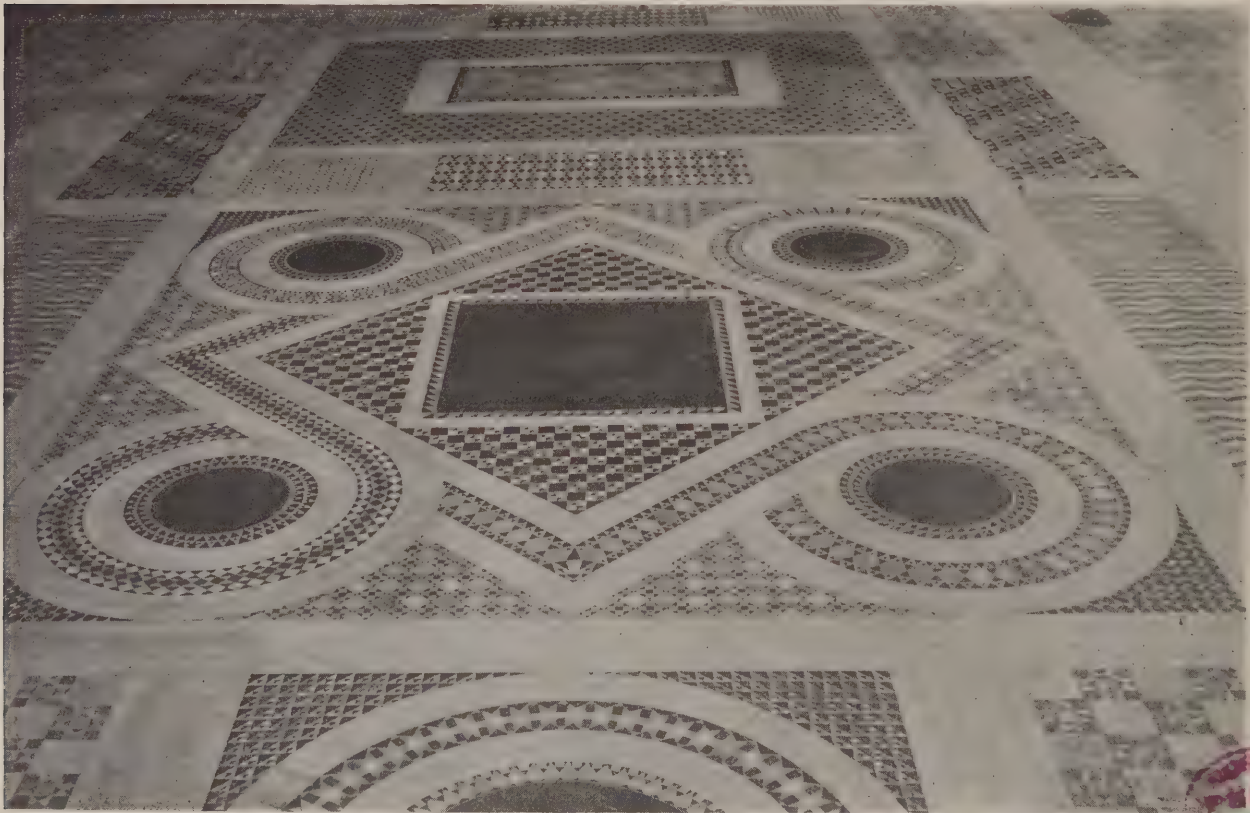


DETAILS FROM A FLOOR MOSAIC IN THE NAVE OF SANTA PRASSEDE, ROME.

DRAWN BY ALFRED MAUSOLFF

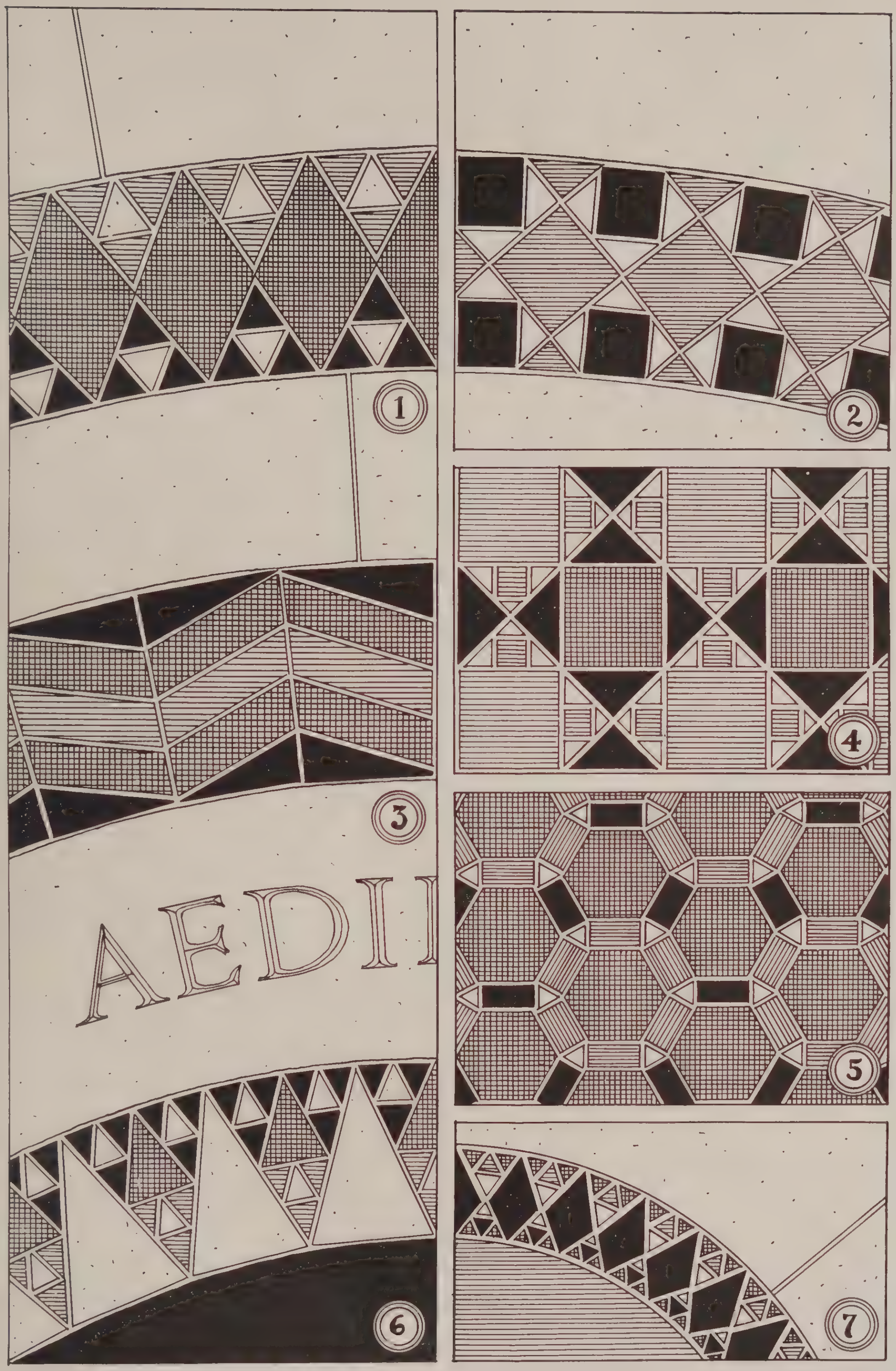


The Circular Slabs of Marble Seen in the Center Designs Were Usually Sliced from Ancient Porphyry Columns, and Accordingly Vary Slightly in Diameter, Thus Requiring Borders of Various Widths



Much of the Beauty of These Old Floors Lies in the Fact That the Designs Are Executed in Polished and Colored Marble with Borders of Dull White

STON PUBLIC



COLOR KEY	
□	WHITE
■	RED
▤	GREEN
▦	BUFF

DETAILS FROM A FLOOR MOSAIC IN THE NAVE OF SANTA PRASSEDE, ROME.

DRAWN BY ALFRED MAUSOLFF

SCALE

0 1 2 3 4 5

FEET

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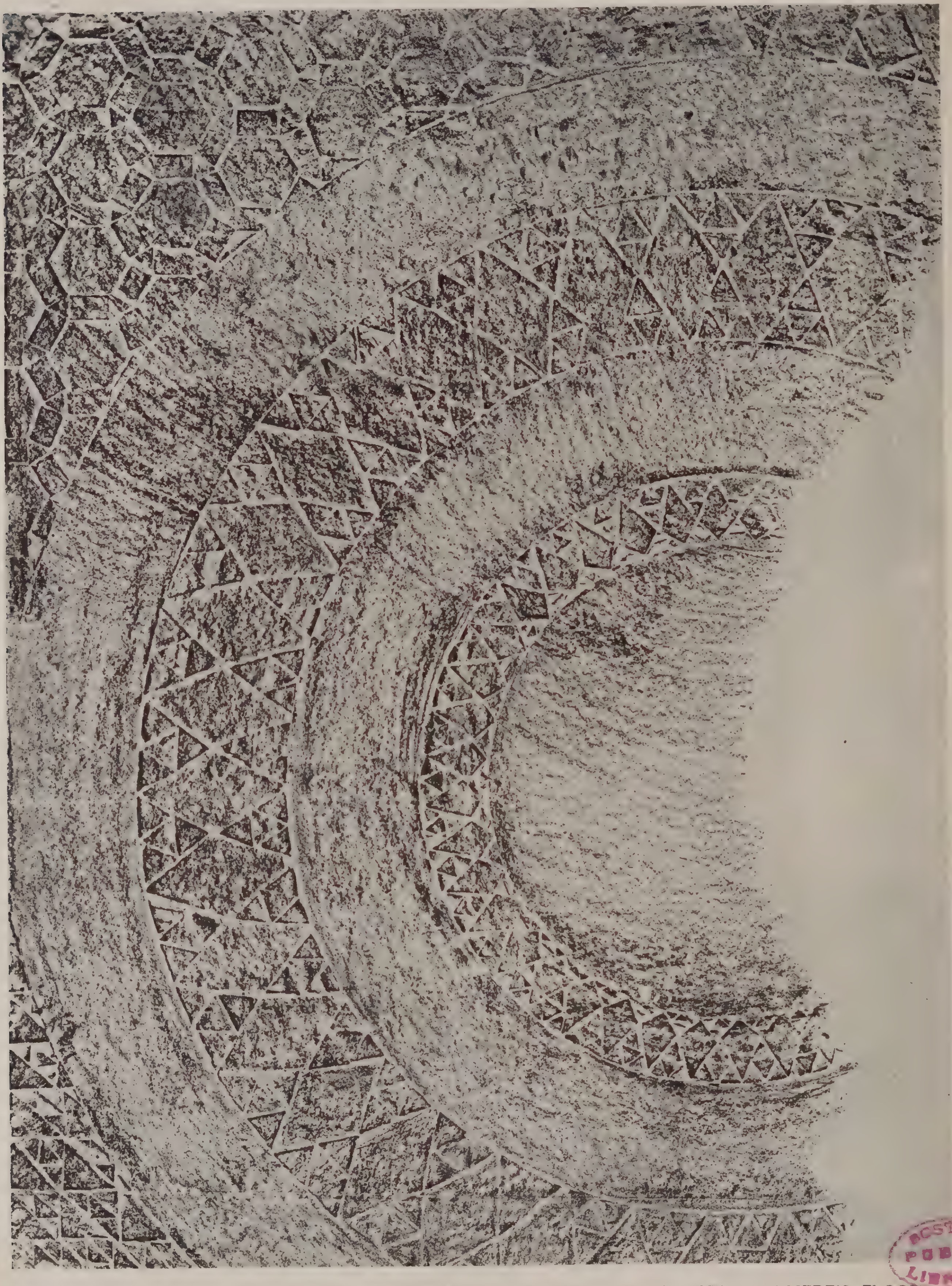

REDUCTION FROM AUTHOR'S FULL SIZE RUBBING OF PORTION OF SANTA PRASSEDE'S FLOOR

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BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

A Review of Building Activity During 1924

An analysis of a record year in the architectural and building fields. The sequel to this article, "A Forecast of Building Activity During 1925," will appear in the next issue.

WHEN the year 1923 drew to a close, and figures were available showing the total of contracts let for new buildings during that year, it seemed that the ultimate high total for any one year of building construction had been reached. At the same time, however, the tabulation of The Forum's Annual Building Survey and Forecast for 1924 were completed, and the amazing figures of this forecast indicated that 1924 was to be not only another $5,000,000,000 year but would establish an even higher record than 1923. As we near the end of 1924 we find that The Forum's forecast has been thoroughly justified, and that 1924 shows total new building construction of value approximately 10 per cent greater than in the record-breaking year of 1923.

This year of 1924 has been marked by no unusual disturbances in the building field and has, in fact, seen begun a desirable condition of stabilization in building material production, transportation, deliveries and in building costs. It has shown how flexible a great industry can be when it anticipates a great demand. The fact that 1924 has been a record-breaking year has been due not only to an unusual demand for new buildings, particularly in the speculative and investment fields, but also to the farsightedness of manufacturers who were prepared in stock and production capacity to meet the heavy demand which was to be placed on the building material market during the spring of 1924 and again in the reaction of buying in the fall of the year.

It is realized that although 1924 has been a year of unusual activity in the building field, such activity has been geographically centralized and not general throughout the country, although the fall season has shown a revival of activity everywhere. The great bulk of unprecedented building expenditure has been in the metropolitan area of New York, where each month has seen past records surpassed. The average total value of new building construction for the country with the New York area deducted has been only 2 or 3 per cent greater than in 1923, and in some districts even less.

The trend of building costs has not shown any violent fluctuation during the past year. An examination of the chart on page 27 will show that the index of building costs rose gradually from January until April, undoubtedly increased by the de-

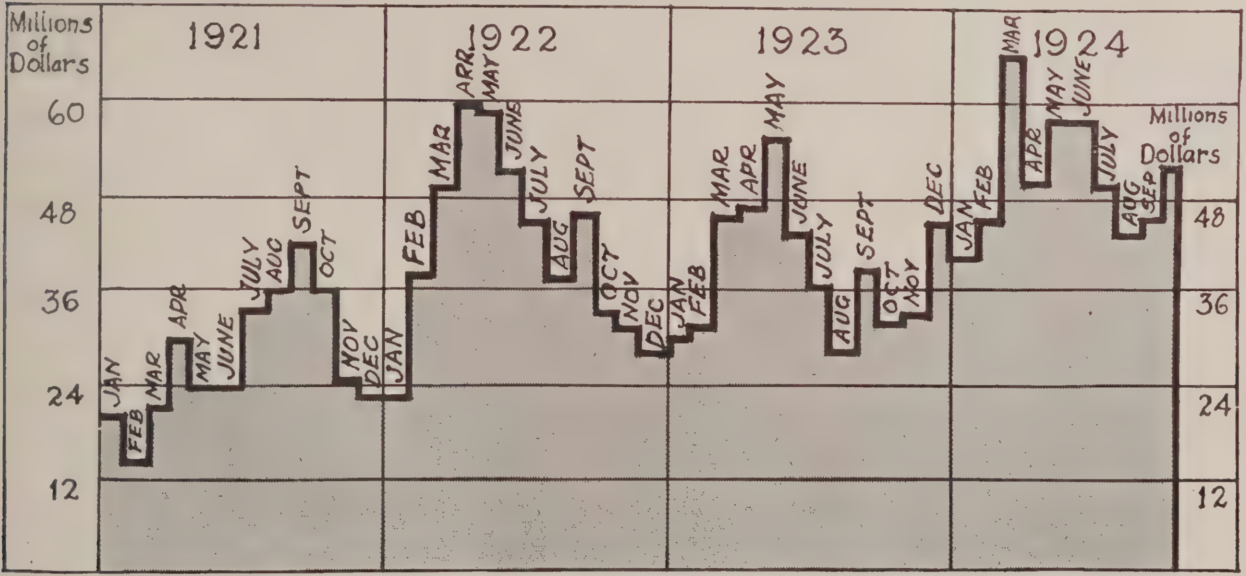


Chart A. Graphic Record of the Monthly Investment in COMMERCIAL BUILDINGS During Four Years—1921 to 1924

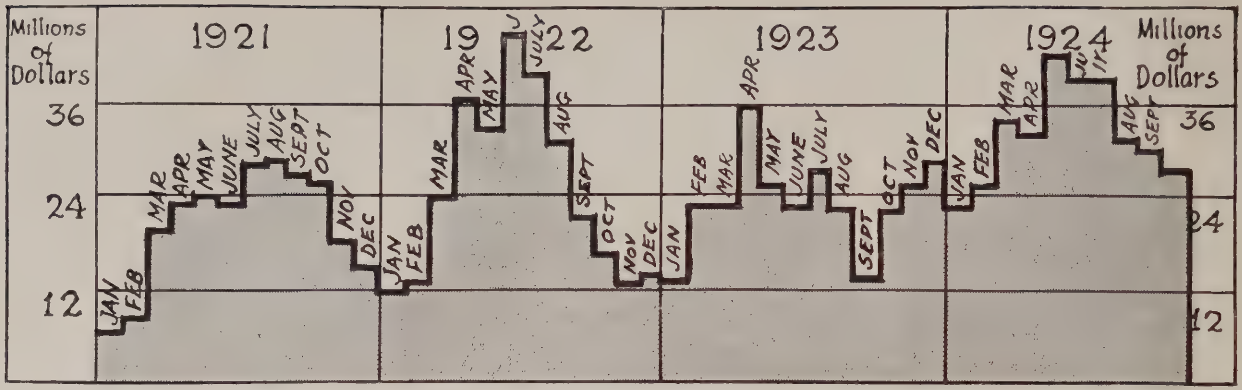


Chart B.—Graphic record of the monthly investment in SCHOOL and COLLEGE buildings during the four years 1921 to 1924

mand for labor and materials for the spring season; then it shows a slow decline through the summer months until in October, when the cost was approximately that indicated for December of 1923. This line has fairly paralleled that of general commodity costs shown in the same chart, and proves the fact that the building industry is a basic industry so interrelated with prosperity in other lines that building costs may be established as a fair index of the general business situation.

Accompanying this article will be found seven charts which have been developed graphically to show the amount of money invested every month for four years in seven important building types. Here will be found many interesting comparisons of activity in these several fields of building construction.

The residential field, including dwellings, apartment buildings and hotels, is analyzed on page 25 and indicates that the bulk of excess activity during 1924 was in this field. Nearly 40 per cent of the total value of new building construction during 1924 was residential in character. Examining the chart on page 25, it will be seen that every month during the year shows a considerable increase over the corresponding month of 1923. On this chart will be found also the relative curve of fluctuation in residential building costs, which indicates the variation during these four years. It will be noticed that in

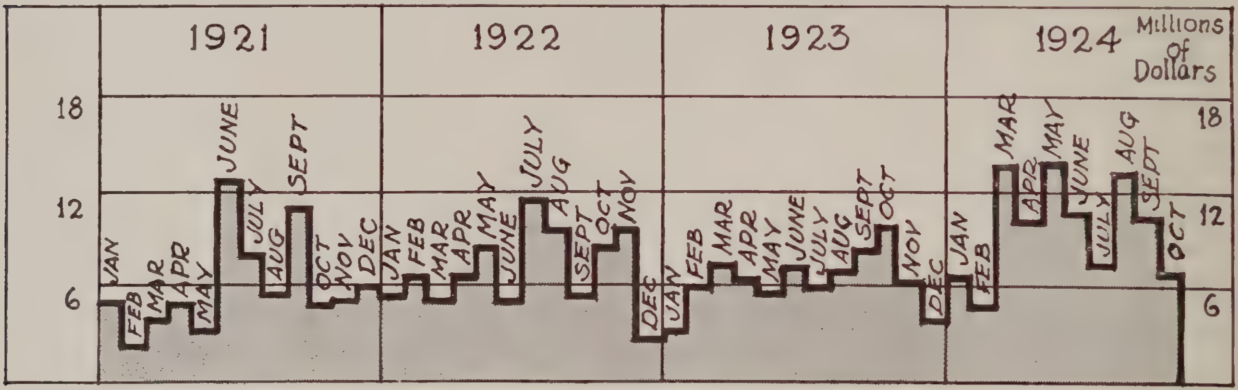


Chart C.—Graphic record of the monthly investment in HOSPITAL and INSTITUTIONAL buildings during the four years 1921 to 1924

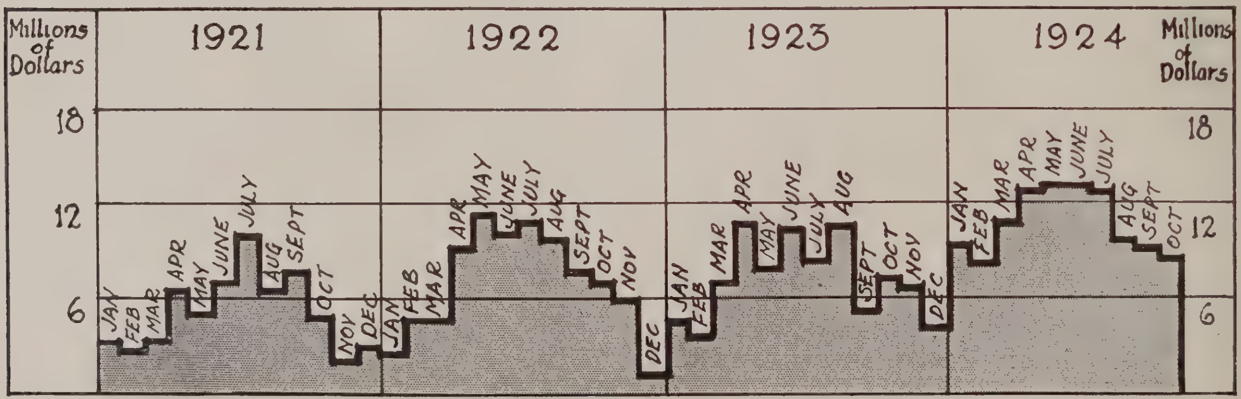
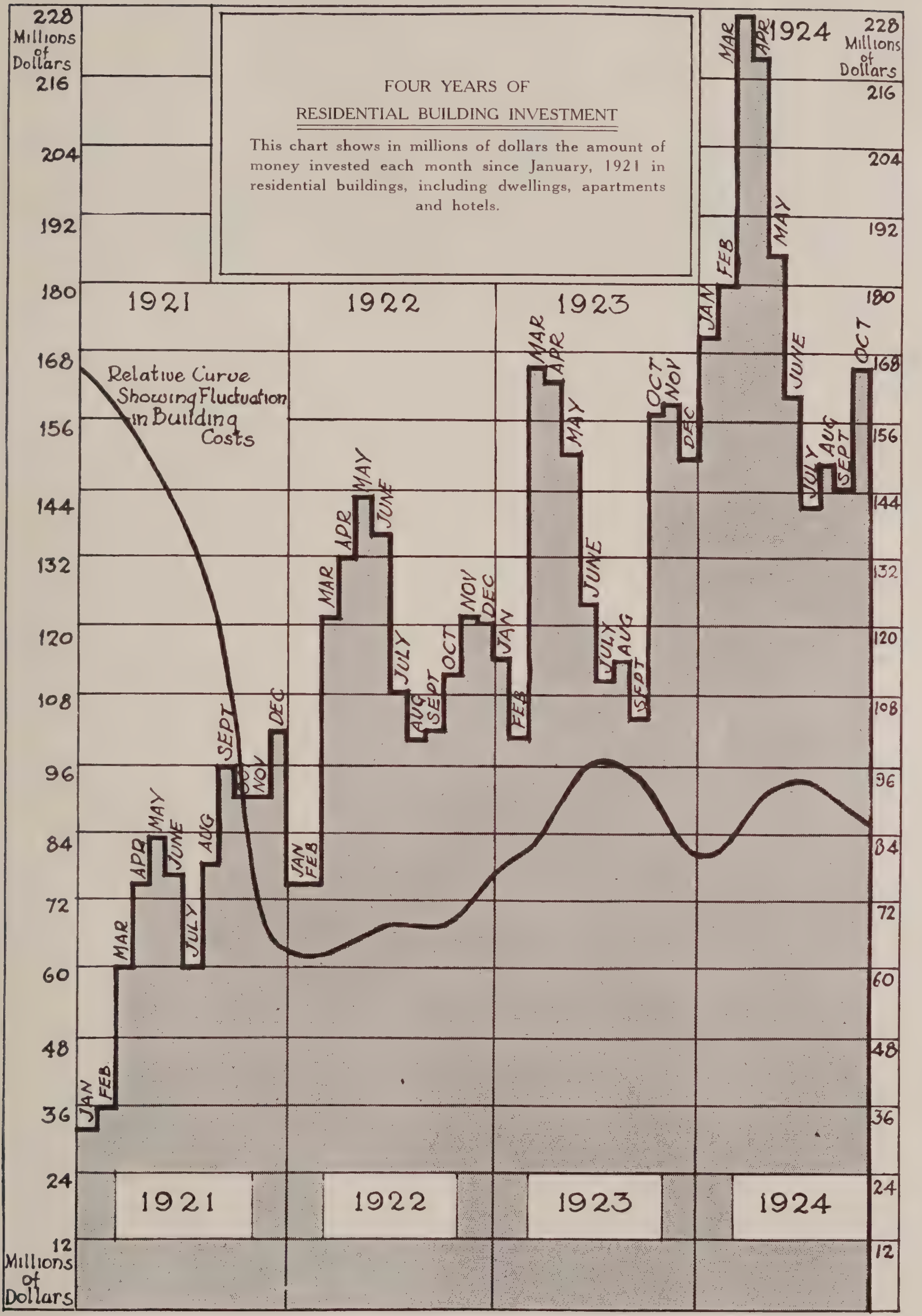


Chart D.—Graphic record of the monthly investment in new CHURCHES during the four years 1921 to 1924



FOUR YEARS OF RESIDENTIAL BUILDING INVESTMENT

This chart shows in millions of dollars the amount of money invested each month since January, 1921 in residential buildings, including dwellings, apartments and hotels.

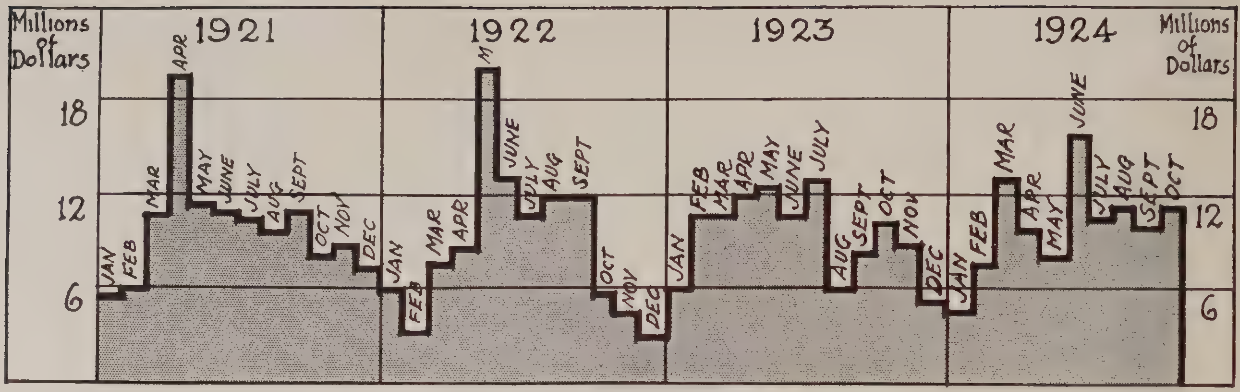


Chart F.—Graphic record of the monthly investment in CLUB and RECREATIONAL buildings during four years—1921 to 1924

1921 a great drop in the cost of building was recorded. This was the period of deflation for the building industry, when costs dropped from the unprecedented peak which followed wartime building activity, and it is plain that in 1921 as costs dropped the volume of new building increased steadily. So great was the momentum of falling costs and the impact of the "buyers' strike," which occurred in 1921, that the general cost of building fell to an artificially low level early in 1922 from which it recovered gradually as the volume of new building mounted. Eliminating its seasonal trend, this index line of building cost may almost be said to reflect the element of public confidence which has mounted steadily as building costs have stabilized and investment returns have proved certain and not subject to any further rapid deflation in the cost of building.

It is interesting to note in studying this building cost trend that each period of spring activity in 1922, 1923 and 1924 has been followed by a corresponding increase in the cost of building. This is a natural and healthy condition, which affects stabilization because it is at these periods that stocks are naturally low, building labor scarce and costs correspondingly high. These peaks of increased cost extend through the summer months, because the great volume of building construction is under way during that period, and only the seasonal effect of the winter months causes a slowing down of demand and consequently a drop in the cost trend line.

Comparisons of activity in other building types, as indicated in the accompanying charts, are interesting but do not show as great a difference in totals as those indicated in the residential field. The chart on page 23 records the activities of four years in the commercial building field, and shows that in 1924 there was more activity in this field than in other years, although that of 1922 closely approached this total. Evidently, under fairly normal conditions, the demand for commercial buildings in this country is steady, and does not show any great fluctuation from year to year except in relation to the totals of all building activity in different parts of the country.

It is surprising to note that in the school building field, as indicated in the chart on page 24, the activity

(Continued on page 27)

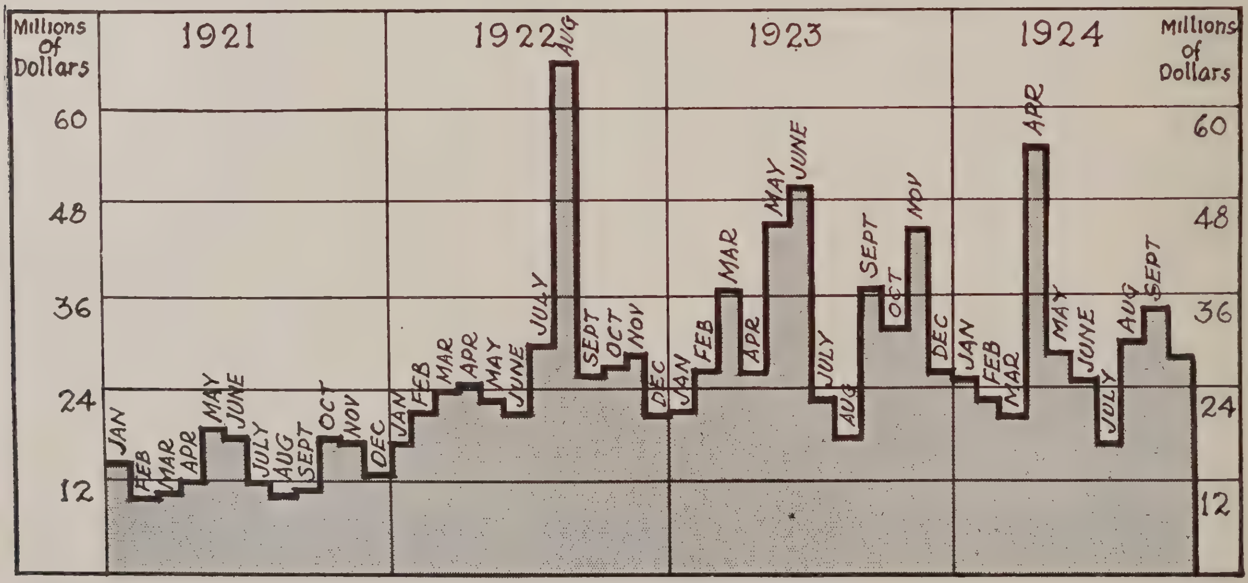
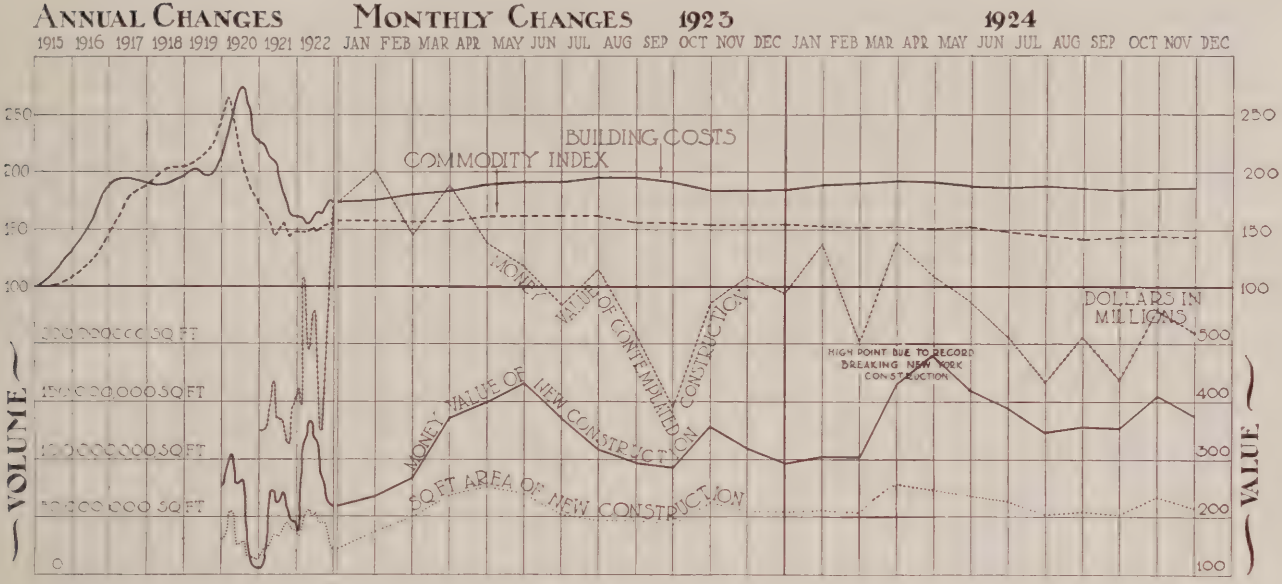


Chart G.—Graphic record of the monthly investment in new INDUSTRIAL buildings during four years—1921 to 1924

The Building Situation

A MONTHLY REVIEW OF COSTS AND CONDITIONS



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

(Continued from page 26)

of 1924 has been approximately equal and sometimes greater than for the unusual periods recorded in 1921 and 1922, which were supposed to represent the era of greatest activity ever to be known in the school building field. Here is reflected not only a definite effort to meet the shortage in school buildings which developed during and before the war period, but also a decided trend toward improvement and modernization in educational methods and consequently in the buildings which house such activities. School building is to remain active for some time to come, because there exist not only the problem of meeting the normal demand but also that of meeting a changing educational system and of replacing thousands of inadequate and obsolete schools.

1924 has been a great year in the hospital building field, as is shown on the accompanying chart. During the three years, 1921, 1922 and 1923, the building of new hospitals seemed to maintain an average pace and, strange to say, with very little seasonal fluctuation. 1924 has shown at least three record-breaking months in the hospital field, due to a tendency toward the construction of extremely large and expensive hospital units, and many more of these are to come in 1925, judging by preliminary reports and plans filed within the last two months.

The industrial building field during the last three years has shown a decided recovery from the slow period immediately following the war, and 1924 has contributed a quota equal to that of 1922 or 1923.

Church building has for the past three years gone on quietly but in large volume,—almost twice as great as normal. The year 1924 shows a greater volume of church building than any preceding year, and again there is reflected a drastic change in the planning of a basic building type, because churches today are for the most part built in larger units than in the past. Religion has been expanded to embrace many forms of community activity which in times past were not thought of as part of the service rendered by the church to its neighborhood. Consequently, the plan of church buildings has been developed to include educational and social facilities.

In the February issue of THE ARCHITECTURAL FORUM a detailed forecast of 1925 activity in the building field will be presented, as it has been presented successfully for the years 1922, 1923 and 1924. Here will be indicated types of buildings which may logically be expected to show a high degree of activity, and the reasons why the demand for such buildings will be met during 1925.

The Building Economics Digest

REFERENCE LIST OF BULLETINS, REPORTS AND OTHER PUBLICATIONS COVERING BUSINESS AND STRUCTURAL SUBJECTS OF INTEREST TO ARCHITECTS

WINTER CONSTRUCTION

IN the October 23, 1924 issue of *Engineering News-Record* appears the fourth and last of a series of articles on winter construction from the viewpoint of the contractor. These articles were written by C. S. Hill, Associate Editor, and contain much valuable information not only for the engineer but for the architect as well. The conclusion of the series thus sums up the main points established:

1. Winter conditions which affect the contractor are not climatic generalizations but local weather and frost phenomena, to be counteracted by specific methods.

2. Equipment and methods have been developed to a degree of efficiency which enables the contractor to solve the technical problems of winter construction with remarkable certainty.

3. Under present conditions of slack construction in winter, with labor and materials seeking a market, the contractor can obtain winter costs as low as or lower than the average costs of summer work. As all-the-year operations become general, the present wages and price curves will flatten out and the savings will be reduced.

4. Coördinate development of materials supply and delivery is essential as the volume of winter construction increases.

5. Full and considerate coöperation of the owner and engineer with the contractor in easing the exactions of winter work will increase the contractor's efficiency and reduce his costs.

6. Present conditions of seasonal construction are not primarily of the contractor's making. He is the servant of the owner and can act only when the owner calls for action. His efforts, individually and through organization, are being actively and successfully directed toward the elimination of seasonal construction.

BUILDING SHORTAGE

A NATION-WIDE survey, covering all cities having a population of 10,000 and over, has recently been completed by S. W. Straus & Company to determine the present building shortage. The report based on the results of this investigation shows that there is a shortage of building amounting to more than $4,000,000,000 in value. Of this amount $2,102,698,500 is needed for residential buildings; $1,130,851,500 for commercial buildings, and $870,270,000 for public buildings of all kinds. The survey covered 528 cities, of which number 148 showed no shortages. Several cities having a population under 10,000 were also studied, many of which revealed a shortage in all types of buildings.

BUILDING MANAGEMENT PROBLEMS

IN the November 24, 1924 issue of *Building and Building Management*, Chicago, there is an interesting article on "The Outline of Property Management" by Col. Gordon Strong, Past President of the National Association of Building Owners and Managers. This article was originally presented as a lecture before the Y. M. C. A. School of Commerce, and is of considerable interest to architects.

STANDARD CONCRETE SPECIFICATIONS

THE American Society for Testing Materials, 1315 Spruce Street, Philadelphia, has just issued a report on this subject, complete with 18 appendices, including 14 A. S. T. M. specifications and methods of testing that are a mandatory part of the general specifications. These specifications conclude the second (1924) report of the Joint Committee on Concrete and Reinforced Concrete. The book may be obtained at the list price of $1.50 per copy, or $1 to architects who are members of the A. S. T. M.

THE FORUM CONSULTATION COMMITTEE

A Service for Architects

A Group of Nationally Known Experts on Various Technical Subjects Allied to Building Are Coöperating on This Committee

Architects who seek information on specific questions in the various fields indicated under these headings are invited to present inquiries when such problems arise.

HOTEL DESIGN AND EQUIPMENT
Daniel P. Ritchey

An experienced hotel owner and manager with architectural training, and particularly qualified to advise on practical questions of planning and equipment.

BUILDING FINANCE
Walter Stabler
Comptroller, Metropolitan Life Insurance Co.

An official whose broad experience in making loans for building construction has developed widely recognized knowledge of mortgage problems.

BUILDING MANAGEMENT
J. Clydesdale Cushman

President, Cushman & Wakefield, Inc., Real Estate, New York, an organization which has participated largely in the promotion and operation of many large New York buildings.

HEATING AND VENTILATING
Charles A. Fuller

Member of the firm of Griggs & Myers, New York, widely experienced in the field of heating and ventilating design for buildings of all types.

FIRE PROTECTION ENGINEERING
J. D. Hunter
Chief Engineer, Marsh & McLennan, New York and Chicago

Specialist in insurance engineering as applied to building design, construction and equipment.

SAFETY ENGINEERING
S. J. Williams

Secretary and Chief Engineer, National Safety Council, Chicago, and a specialist in structural and mechanical safeguards against accident and loss of life.

Building Labor Productivity and Costs

IN the November, 1924 issue of the *Monthly Labor Review* appeared an article by Ethelbert Stewart, United States Commissioner of Labor Statistics, describing in detail the findings of an extensive survey of building labor costs. This information will undoubtedly interest architects, as it has definite value in estimating and checking building costs.

Early in 1923 the United States Bureau of Labor Statistics began an investigation of labor productivity or efficiency in certain occupations in the building trades. Preparatory to this survey a conference of large building contractors and construction engineers from various cities of the United States was called. Elaborate questionnaires were devised as the result of the conference, covering a large number of specific occupations and types of work.

The field investigation was conducted principally by Special Agent Paul H. Moncure, of the United States Bureau of Labor Statistics, assisted occasionally by others of the bureau's staff.

The investigation was started in Atlanta, with the idea that it could be begun early in the year in a southern city. Atlanta was therefore the "try-out" city. This explains the large number of schedules from there as compared with other localities. The conference agreement was that not less than five schedules should be secured from each city on each of the sections of the study.

This being pioneer work, it was not expected that all the details called for by the conference questionnaire could be readily secured from every building contractor, but making all allowances for this, the try-out was discouraging. Only new work was considered. At the very outset carpentry work on frame buildings had to be abandoned, as there was no well defined unit of production.

As the investigation progressed from city to city it was found that in almost every line local styles and types of materials used made it necessary entirely to abandon certain points of inquiry. For instance, while bricklaying was covered in 15 cities, roofing was scheduled in only 10 localities, and painting in only four. Painting was abandoned because it became more and more difficult to follow up new work and because the various color schemes on the same house prevented the agents from getting adequate samples of straightaway work. Composition roofing was found to be much used in some cities and almost unknown in others, with the result that it was necessary to confine the study practically to bricklaying and pick up such other information from time to time and place to place as could be obtained.

Notwithstanding the persistence of articles and interviews in newspapers and trade journals about the relative inefficiency of labor as compared with former years, this bureau was unable to find a single building contractor, superintendent or foreman who had a record of work done per man-hour on the jobs in progress or upon any former job. It was necessary, therefore, for the agents of the bureau to locate building projects just begun or just about to be begun, and then to make arrangements with the responsible contractor to have the actual time of the men kept for the purposes of this report, and not only that but to follow up each job day by day to see that the record was being kept.

Whatever interest the subject may have for interviewing purposes, it must be admitted that the men coming in direct contact with building work have very little interest in the time cost by occupations or trades in the building industry. We are publishing the material collected by the bureau for what it is worth as representing the pioneer attempt to secure the actual facts through impartial sources.

Bricklaying

The instruction to the agents was to secure the bricklayer time and labor cost per 1,000 common bricks laid in a straightaway wall without openings. This would seem to be a simple matter, but it was found that brick houses, so common a generation ago, are very difficult to find. Structures of hollow tile, of cement and framework, and of steel are being faced with "face brick," but obviously these are so particularized in their plans, especially as to the brick finishing part, that this work cannot be considered as ordinary bricklaying; and solid brick walls are very difficult to locate. In other words, the bricklaying today is for the most part very different from that of 20 years ago or even 15 years ago. Methods of using brick have changed.

However, it was possible to find at least five new buildings in each city visited where common brick was being laid in straightaway walls of sufficient dimension to justify schedules being taken for them. The original questionnaire covered the question as to whether the bricklayer had to build his own scaffold, but as this was not found to be true in any case it has been eliminated from the tabulation. Another question referred to the placing of the brick and mortar for the bricklayer as, for instance, foot level, waist level, etc. As the bricklayer was required to pick up the brick from his own foot level in every case scheduled except two, this has also been eliminated.

The highest labor cost per 1,000 bricks in the wall ($14.47) was found in Indianapolis, where an average rate of $1.37 per hour resulted in a labor productivity of 95.7 bricks per man per hour. It should be understood that this money cost is for the bricklayer only. The costs of bricklaying vary greatly.

The lowest average cost per 1,000 bricks in the wall was found in Birmingham, where an average pay of $1.16 an hour resulted in a productivity of 241 bricks per man per hour.

LABOR PRODUCTIVITY AND COST IN BRICKLAYING, BY CITIES

City	Number of schedules	Average rate of pay per hour	Number of bricks laid: Per hour	Number of bricks laid: Per day of 8 hours	Cost of laying 1,000 bricks
Atlanta	23	$1.05	185.3	1,482.4	$6.30
Birmingham	8	1.16	241.0	1,928.0	4.82
Chattanooga	11	1.46	226.1	1,808.8	6.85
New Orleans	7	1.01	203.5	1,628.0	5.11
Norfolk	10	1.37 1/2	231.8	1,854.4	6.38
Boston	5	1.25	97.7	781.6	12.94
New York	12	1.76	157.6	1,260.8	11.69
Philadelphia	14	1.53	123.3	986.4	12.65
Chicago	24	1.57	156.8	1,254.4	10.60
Cincinnati	10	1.43	131.5	1,052.0	11.47
Cleveland	14	1.50	147.8	1,182.4	10.55
Denver	18	1.50	212.4	1,699.2	7.58
Detroit	15	1.54 1/2	154.0	1,232.0	10.44
Indianapolis	10	1.36 4/5	95.7	765.6	14.47
Minneapolis and St. Paul	21	1.21 1/10	193.2	1,545.6	6.84

The matter of trade union application of the workmen is shown, where such conditions were found, in the detailed table. Unionism appears to have had very little influence in a given trade in a given locality so far as bricklaying is concerned. For instance, eight of the establishments covered in Atlanta used union labor only. The average rate per hour was $1.20; the average productivity on these eight jobs was 243.9 bricks per hour, with a money cost of $5.50 per thousand bricks in the wall. There were nine non-union jobs, with an average of 97 cents an hour, a productivity of 142.9 bricks per hour per man, and a labor cost of $6.90 per thousand bricks in the wall. There were six mixed groups—that is to say, both union and non-union men on the same job—at an average hourly rate of $1.05 per man, a productivity of 169.4 bricks per man per hour, at labor cost of $6.44 per thousand.

LABOR PRODUCTIVITY AND COST IN PAINTING, BY CITIES

City	Number of schedules	Number of coats	Rate of pay per hour	Number of squares painted: Per hour	Number of squares painted: Per day of 8 hours	Cost of painting per square
Atlanta	5	3	$0.68	0.34	2.72	$2.29
Birmingham	4	2	.63	.57	4.56	1.12
Chattanooga	3	2	.75	.48	3.84	1.57
New Orleans	4	3	.83	.25	2.00	3.84

In Chicago 10 union jobs were scheduled, paying an average of $1.56 per hour, with a productivity of an average of 161.9 bricks per man-hour and a labor cost of $10.28 per thousand bricks in the wall. Three strictly non-union plants were scheduled paying $1.52 per hour and having a productivity of 128.6 bricks per man-hour and a labor cost for bricklayers of $12.15 per thousand bricks in the wall. There were 11 jobs scheduled operating under the Landis award. The average pay was $1.60 per hour, the productivity was 159.7 brick per man-hour, and the labor cost was $10.48 per thousand bricks actually in place in the wall.

Plastering

The schedule called for screeded and commercial plastering, two-coat work, the time to be shown on gross and net area. In the summary given here by cities the distinction between commercial and screeded work is not considered, as there is no uniform difference in the output per man per hour.

The net area per man-hour as between union and non-union plasterers did not vary greatly in the same locality. Twelve schedules taken from union firms in Atlanta give a net area output per man-hour of 5 square yards. Seven non-union jobs have an average of 5½ square yards. The non-union plasterer's cost per square yard was 19 cents and the union plasterer's cost 25 cents, but this difference is accounted for in the difference in the wages paid.

Painting

Painting is shown for only four cities. Five schedules on three-coat work were obtained in Atlanta, and four schedules on three-coat work were obtained in New Orleans. For the other two cities data are shown for two-coat work. In most cases the work was done by a so-called bucket painter, a man working for himself who may or may not employ assistants. The schedule called for straightaway work on new buildings. To obtain this information it was necessary for an agent to locate the jobs and watch them until first and second coats had been put on and had time to dry.

LABOR PRODUCTIVITY AND COST IN ROOFING, BY CITIES

City	Number of schedules	Rate of pay per hour	Number of squares covered: Per hour	Number of squares covered: Per day of 8 hours	Cost of covering per square
Atlanta	14	$0.90	0.78	6.24	$1.16
Birmingham	9	(1)	1.00	8.00	1.00
Chattanooga	10	.68	.31	2.48	2.21
New Orleans	22	.92	.62	4.96	1.49
Norfolk	12	.81	.40	3.20	2.04
Boston	5	1.10	.53	4.24	2.09
New York	10	1.15	.49	3.92	2.72
Philadelphia	7	.87	.66	5.28	1.38
Cincinnati	7	.89	.33	2.64	2.81
Indianapolis	7	.92	.77	6.16	1.23

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[1] $1. per square.

The tabulation on productivity per man-hour in roofing is included and submitted only for what it is worth and with an idea that it may be helpful for comparative purposes should future investigations along these lines be made.

LABOR PRODUCTIVITY AND COST IN PLASTERING, BY CITIES

City	Number of schedules	Rate of pay per hour	Square yards plastered: Per hour: Gross area	Square yards plastered: Per hour: Net area	Square yards plastered: Per day of 8 hours: Gross area	Square yards plastered: Per day of 8 hours: Net area	Cost of plastering per square yard: Gross area	Cost of plastering per square yard: Net area
Atlanta	19	$1.040	5.7	5.2	45.8	41.4	$0.21	$0.23
Birmingham	7	.957	7.2	5.9	57.5	47.1	.14	.17
Chattanooga	10	1.134	7.4	6.4	59.0	51.4	.17	.19
New Orleans	8	1.000	5.5	4.6	44.0	36.4	.20	.24
Norfolk	7	1.283	7.1	6.0	57.1	47.8	.18	.22
Boston	6	1.438	5.1	4.5	40.8	36.3	.29	.33
New York	9	1.875	6.4	5.4	51.5	43.4	.34	.39
Philadelphia	7	1.643	9.0	7.8	72.1	62.4	.18	.21
Chicago	13	1.792	7.0	6.1	55.6	49.2	.27	.30
Cincinnati	8	1.578	8.6	7.2	68.8	57.5	.20	.23
Cleveland	10	1.500	6.8	6.1	54.6	49.0	.24	.27
Denver	11	1.500	7.5	6.6	59.6	52.9	.20	.23
Detroit	11	1.563	7.2	6.4	57.3	51.2	.23	.26
Indianapolis	7	1.322	6.9	6.0	55.0	47.7	.20	.23
Minneapolis	11	1.70	8.5	7.3	67.9	58.6	.15	.18

ENGINEERING DEPARTMENT

Economy in Concrete Forms

By E. F. ROCKWOOD, M. Am. Soc., C. E.

ALMOST the entire cost of a reinforced concrete structure can be apportioned between three main items,—the cost of the forms, the cost of the concrete, and the cost of the reinforcing steel, and of these three costs that which will vary most for a given building, and hence that which can best be reduced by intelligent design, is the cost of forms. The proper floor loads, the allowable stresses and the spacing of the columns are more or less fixed by considerations other than economy, and once these are determined, the type of design, whether flat slab, beam and girder, ribbed slab or terra cotta and concrete, is also pretty well determined, and this in turn determines largely the amount of concrete and steel, since while one designer may use thicker slabs or deeper beams than another, he will probably use less steel, and the total cost of the two designs will vary but little. On the other hand, without changing the amounts of steel and concrete, large variations can be made in the cost of forms.

The cost of forms may be divided thus:

1st. Cost of material.

2d. Cost of making.

3d. Cost of erecting, stripping and re-making.

Years ago floor forms were built in place, just as a frame house is built; i.e., posts were set up, on top of these girts and joists were laid and nailed, and then on these was nailed the decking. After a floor was formed, these were taken down in reverse order and the work done over again on each floor above. Today an experienced contractor makes his forms up in units which can be easily erected and stripped on each floor.

For example, let us take one bay of a multi-story building of beam and girder construction. The columns would be built by making each side a unit, and these four units might be assembled near their proper location or might be set up one at a time and assembled in place, according to the size of the column. Then the girders would be set in place. These would be made of units composed of the sides and bottoms, and probably would be assembled just below where they were going, and then be hoisted into place with their ends resting on the column forms. Jacks would then be put under them at proper intervals. Next would come the beams, which would be erected in a similar manner. Then the joists would be dropped into place and carried on the beam forms, and finally on these would be laid the floor forms in the shape of panels. To strip the forms, first the column forms would be removed, one side at a time. Then the joists would be knocked out. These in turn would release the panels and beam sides. The beam bottoms would probably be left until the next floor was formed, and then the jacks under them would be removed and the beam bottoms released. These operations would be repeated on each of the several floors above.

Let us consider now the effect of various changes on the floor above.

1st. *A Change in Story Height.* The column forms and the jacks would need to be changed in length. To avoid this expense the distance from the top of the finished floor to the under side of the floor above should be the same as in other stories. If a change is necessary, make the story heights less in the upper stories, as it is easier to shorten units than to lengthen them.

2d. *A Change in Column Size.* This would require changing the units composing the column, lengthening the units of the beams and girders framing into the column, and changing the floor panels around the column. While a change of this sort is necessary on almost all jobs, it should be minimized as much as possible. Particularly with wall columns, it should be considered whether the decreased thickness that could be gained in upper stories would be worth the increased cost of making the change. The writer does not believe that such a change is warranted unless it amounts to at least 4 inches. Interior columns take up more valuable space, and hence warrant changing more frequently. It might be well, however, to consider running them of constant size for two stories, and when they are changed, change them in one dimension only at a time.

3d. *A Change in Size of Beams.* A change in the depth of a beam can be made more easily than a change in width, as very often the bottom can be raised without disturbing the sides. Then all that needs to be changed is the framing at the column and possibly the length of the jacks. If, however, the width of the beam is changed, the beam bottom, the joists and the floor panels and the columns or girders into which the beam frames, will all need to be changed.

4th. *A Change in Slab Thickness.* This is the easiest change of all to make, since unless the distance from finished floor to underside of slab above is changed, none of the forms need be changed.

All of these suggestions can be thus summed up practically: Make the concrete sizes, in all stories, as much alike as possible, so that forms made for the lower stories can be used with as little change as possible in the upper stories.

Another important consideration is the use of sleeves, inserts, piping, etc., which will stick through the forms. These should be avoided whenever possible, as the forms are harder to strip and may be damaged so they will need to be made over before again being used. Whenever possible, sleeves and inserts which can stand on the forms, should be used.

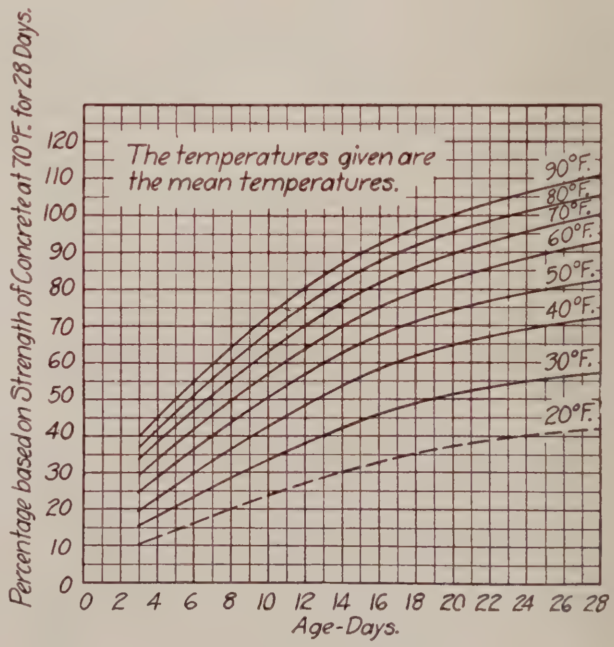
Round column forms are often used for interior columns, especially in flat slab construction. These are carried in stock by certain manufacturers, and it should be borne in mind that stock sizes cover even dimensions of shaft diameters only, and that the diameters of heads are 4′ 0″, 4′ 6″, 5′ 0″, 5′ 6″ and 6′ 0″. In these sizes, round columns are as cheap as square, but if odd sizes are required, the cost will probably be doubled.

In flat slab construction, the use of drop panels against the exterior columns should be avoided, as no reinforcement is saved, the amount of concrete and the form cost are increased, and nothing is added to the strength of the construction. Also, in this type of construction, spandrel beams should be inverted, thereby making it possible for the floor forms to run to the outside of the beams and serve as beam bottoms. Curtain walls, whether used as beams or not, should not be cast until the columns into which they frame have been stripped. If they are used as beams, hangers can be left projecting above the floor to anchor the slab, and a recess can be left in the column to take the end bearing.

But in addition to the economical design of a building from the standpoint of economy in form construction, the requirements as to how long the forms must be left in place will determine how many sets of forms will need to be made and hence greatly influence the cost. Columns and bearing walls can be and should be stripped as soon as they are able to support their own weight,—in summer weather, the morning after they are poured. This allows them to be rubbed and finished while the concrete is still green, and thus the work can be done economically. In flat slab construction, drop panels or plinths can be stripped practically at the same time and at the latest in one day more, as the span from the edge of the drop to the head of the column is very small. In beam and slab construction, beam sides could be stripped as soon as columns were it possible to do so, but as they support the slab forms, they cannot be stripped until the slab forms are stripped. As in this type of construction the slab carries only its own weight and receives no load from the floors above, it can be stripped very much more quickly than can a flat slab floor. In summer weather the writer has seen a conservative engineer and contractor allow a floor slab of 8′ span to be stripped in two days. At least half of the original supports under beams and girders should be left in place in summer weather for from a week to ten days. If they are then removed, reshores should be put in and left in place for three weeks.

In flat slab construction, the weight of the floors above is carried by each floor slab, hence flat slabs should not be stripped as quickly as plain slabs. If reshores are not used, a flat slab should not be stripped in summer until it is at least two weeks old. If reshores are used, it could be stripped in small sections and immediately reshored at the age of four days under the same weather conditions. The reshores should be left in place until the concrete is two weeks old. At other times of the year, both original supports and reshores must be left in place for a longer period of time, depending on the temperature to which the concrete is exposed. In other words, if the building is enclosed and artificial heat furnished, so that the concrete is maintained at summer temperature, the rules for stripping in summer weather can be followed, but if no attempt is made to protect and heat the concrete, rules adapted to such conditions must apply.

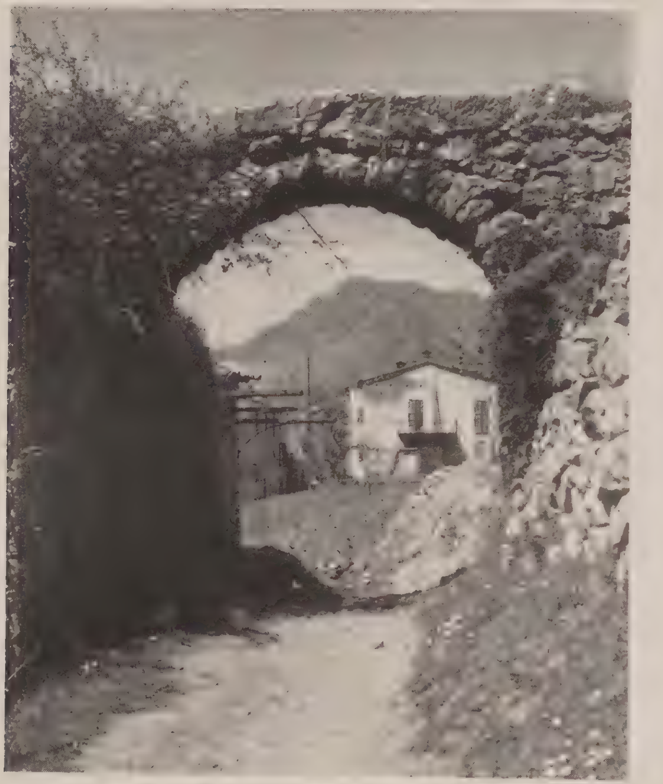
All of the foregoing may be condensed in this wise: Do not remove supports from beneath horizontal members until the concrete has attained sufficient strength to carry safely any load likely to be brought upon it. It is an easy matter to determine the load and the stresses likely to be brought upon the concrete. Due allowance, however, should be made for the reduced spans if some of the original supports are left in place or if reshores are used. The difficult thing is to determine the strength of the concrete, and for this purpose there is shown herewith a plot resulting from tests made at the University of Illinois, showing the effect of temperature on the increase in the strength of the concrete.



Percentages of Strength for Different Temperatures

The Forum Studies of European Precedents

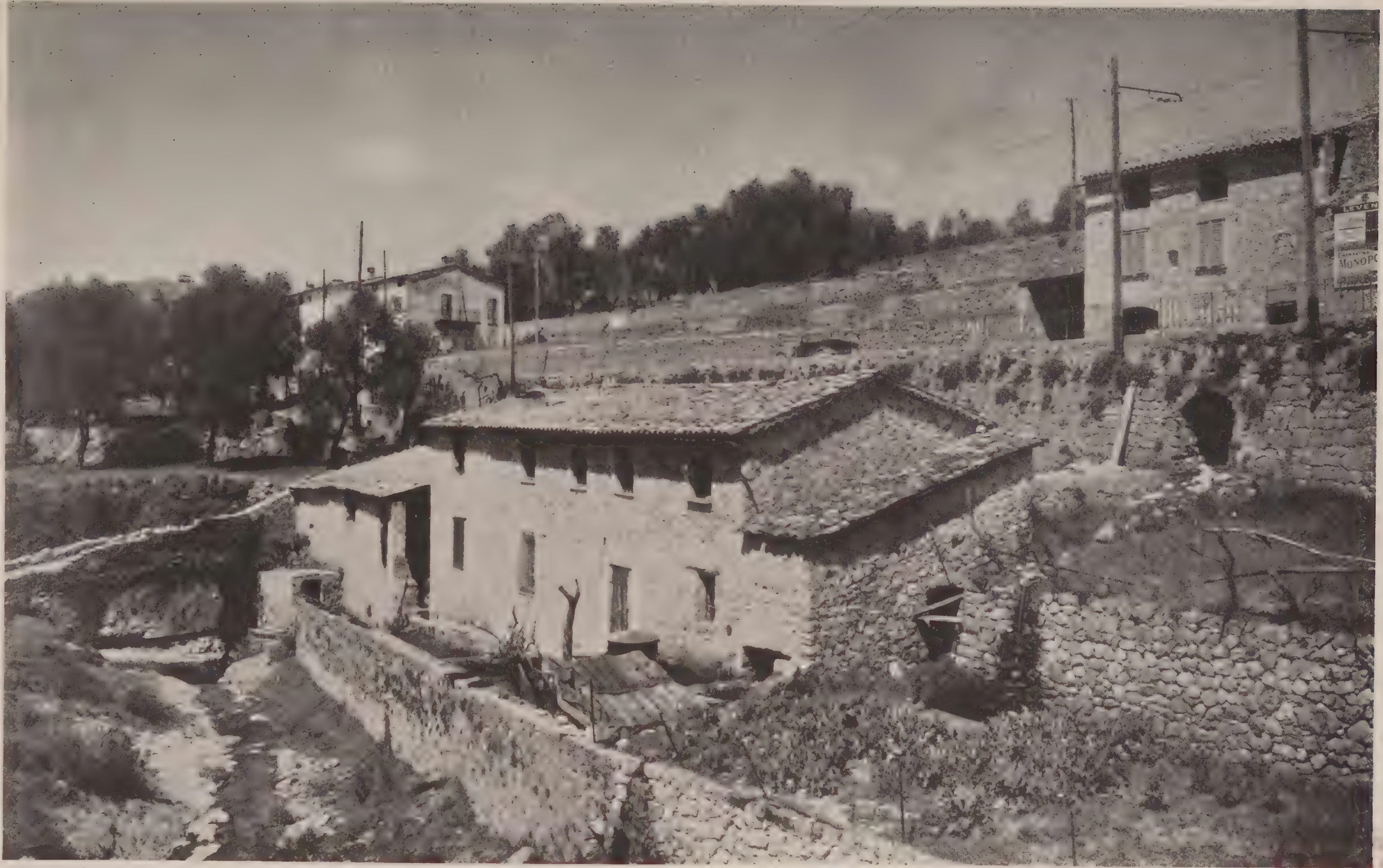
Farm Buildings of Southern Europe



View Through Arch of Old Mill at Les Travers, Near Nice

LITTLE variation in character is found in the farm buildings of southern Europe, whether located in the Riviera of France, or on the sunny foothills of the Italian Alps. Low roofs, flat-sloped, on which are used red or yellow tile; walls of rough stone, sometimes covered with stucco; small windows, irregularly spaced, and low arches where larger openings are required, characterize these picturesque buildings. Usually not more than one or two stories in height, these farm groups are built without any definite plan, being added to from time to time as necessity requires. This haphazard grouping often produces unintentionally artistic results, further enhanced by such practical details as outside stairways, which give access to upper stories, without obstructing for farm purposes the rooms on the ground floor.

Writing about the farmhouses near the Riviera in The Forum last May, William D. Foster thus describes their construction: "While the hills around here are filled with stone, it doesn't seem to be a stone that is very good for quarrying, so that we find very little cut stone used in the buildings. The walls are generally laid up in a pretty rough fashion, with the rounded rocks set in the mortar and with pieces of old tiles and bricks filling in the spaces; a great deal of mortar is generally used, so that the result somewhat resembles a concrete mixture. These walls are then stuccoed or, as in some cases, left with only a little pointing up, so that the stones and bricks show in spots. In a few cases where the stone surfaces have been left uncovered, the stones seem to have been laid with greater care on the outside, but seldom has the stone been cut or trimmed. Practically always where a vault occurs or where an arch has been used, the form has been made with bricks instead of with stones."



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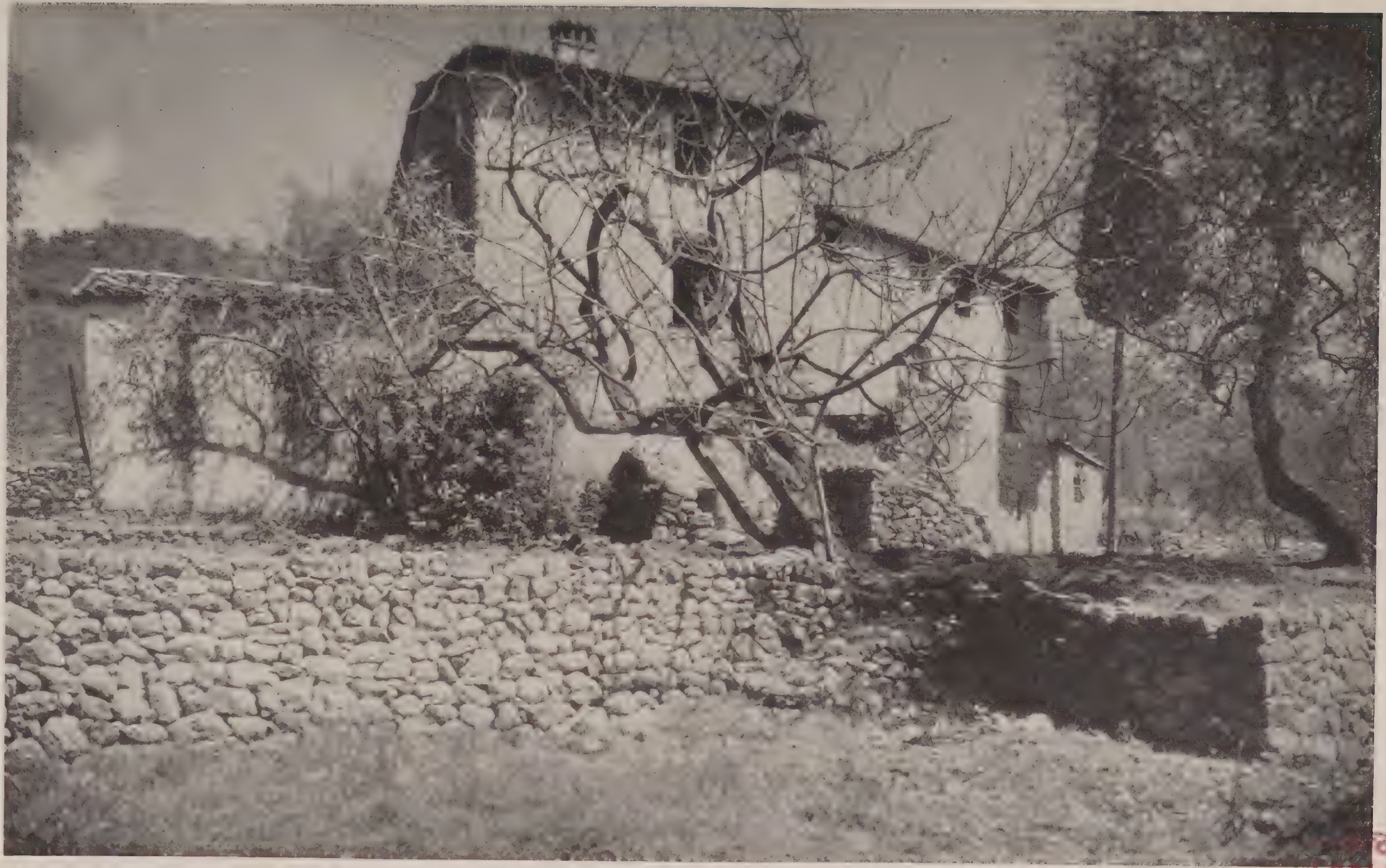
OLD WINE MILL AT LES TRAVERS, NEAR NICE

The Forum Studies of European Precedents; Plate 18



FARMHOUSE AT LES TRAVERS, NEAR NICE

The Forum Studies of European Precedents; Plate 19

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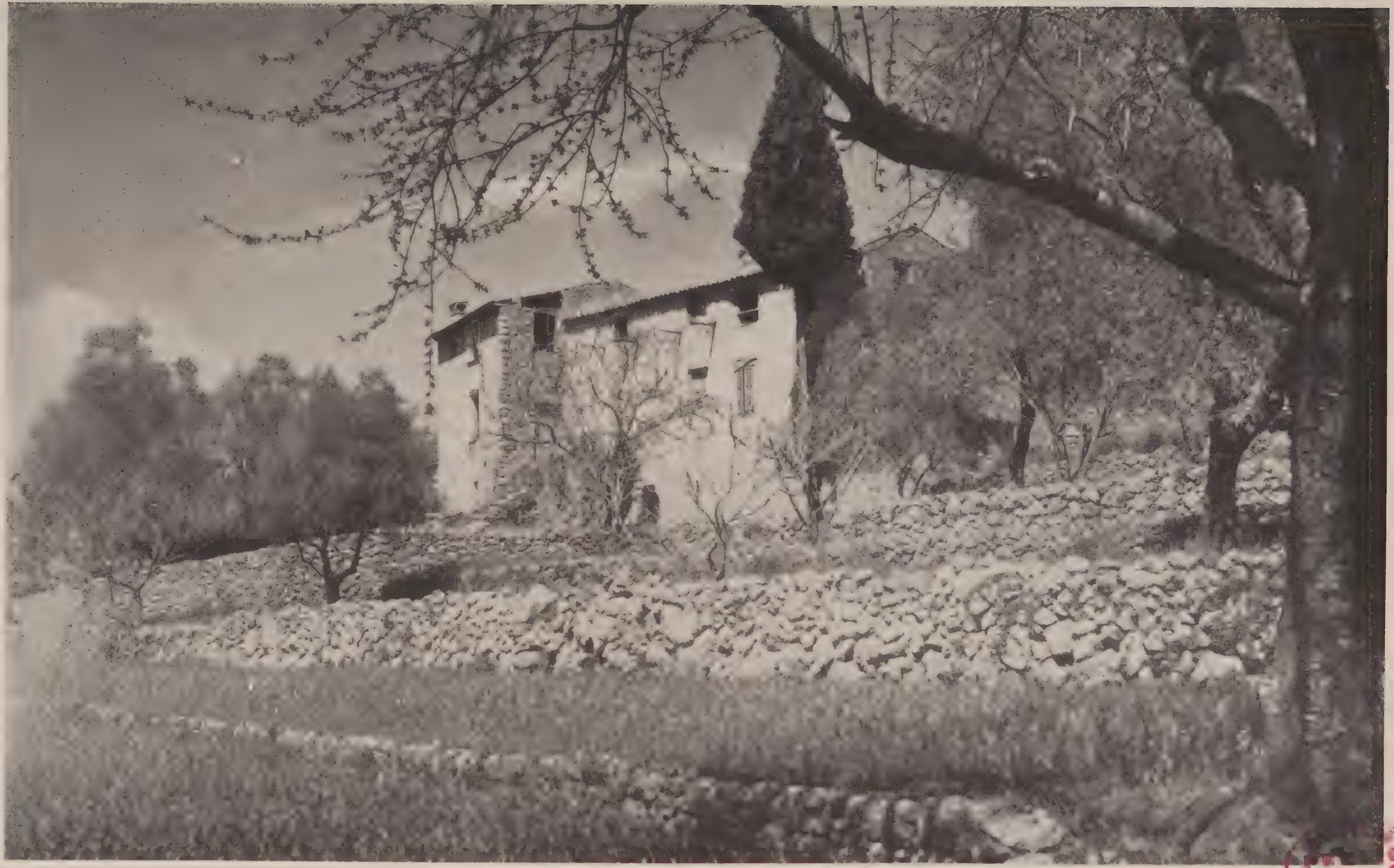

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ANOTHER VIEW OF FARMHOUSE AT LES TRAVERS, NEAR NICE

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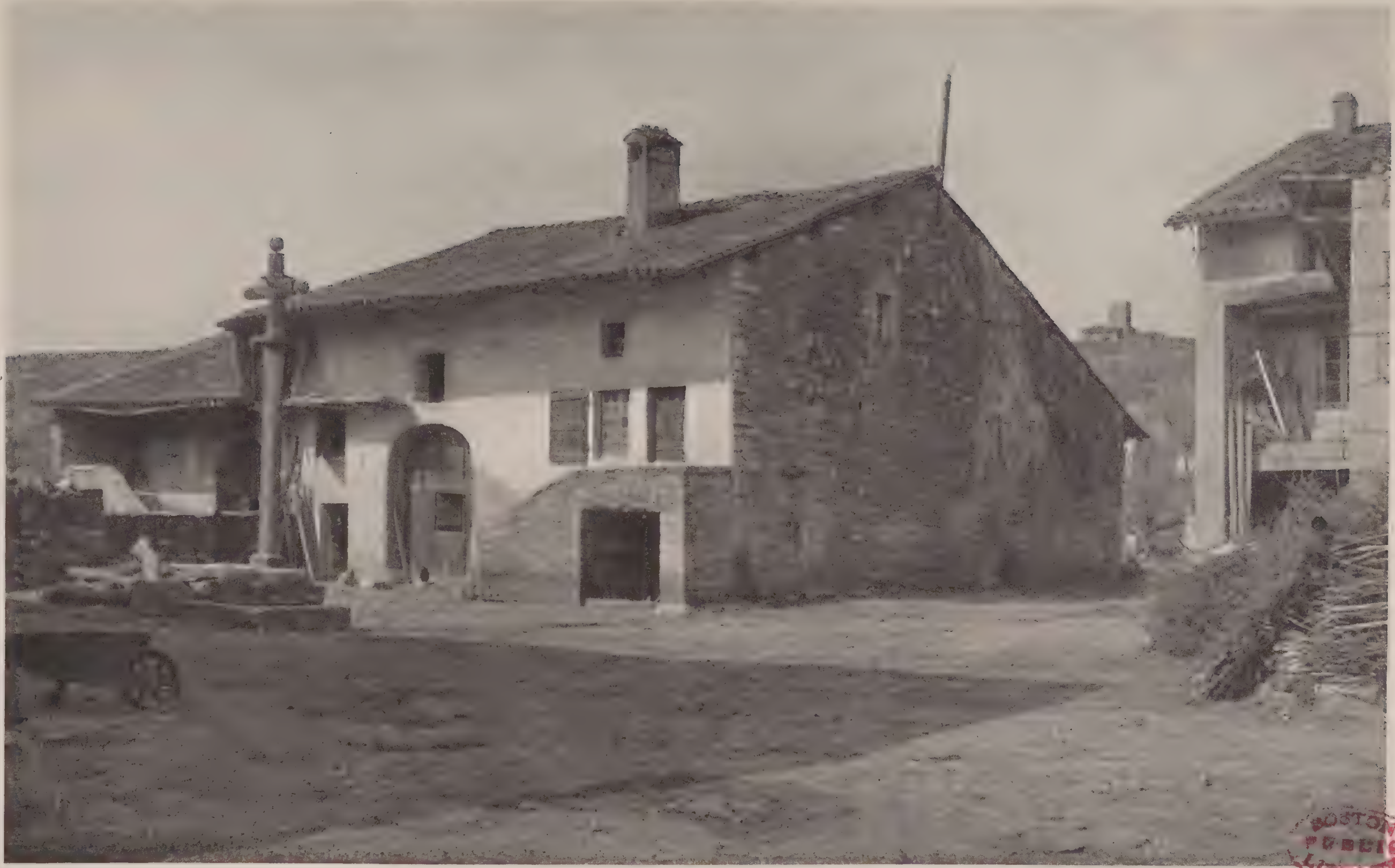

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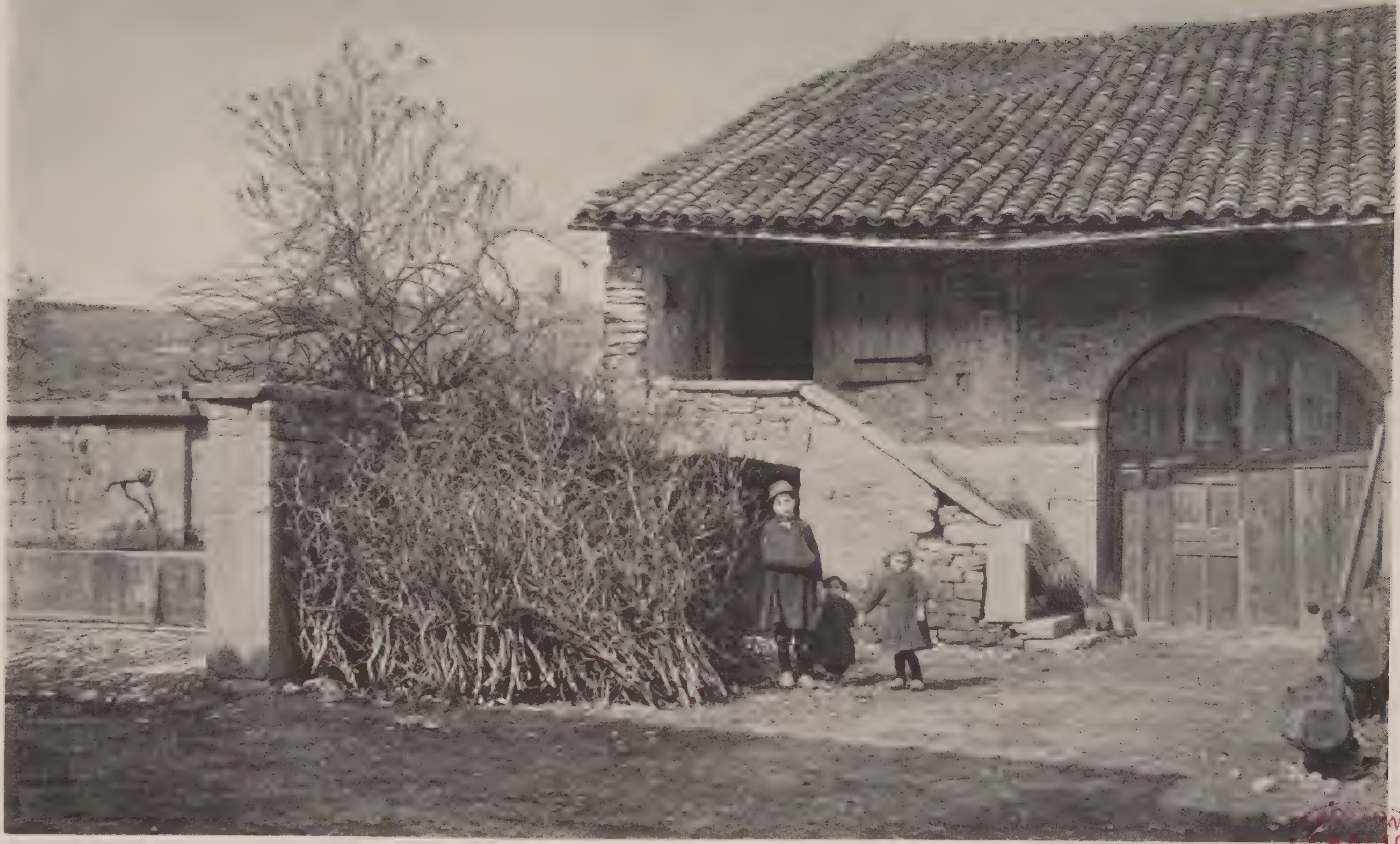
FARMYARD NEAR BAHAS, FRANCE

The Forum Studies of European Precedents; Plate 21



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ANOTHER VIEW OF FARMYARD, NEAR BAHAS, FRANCE

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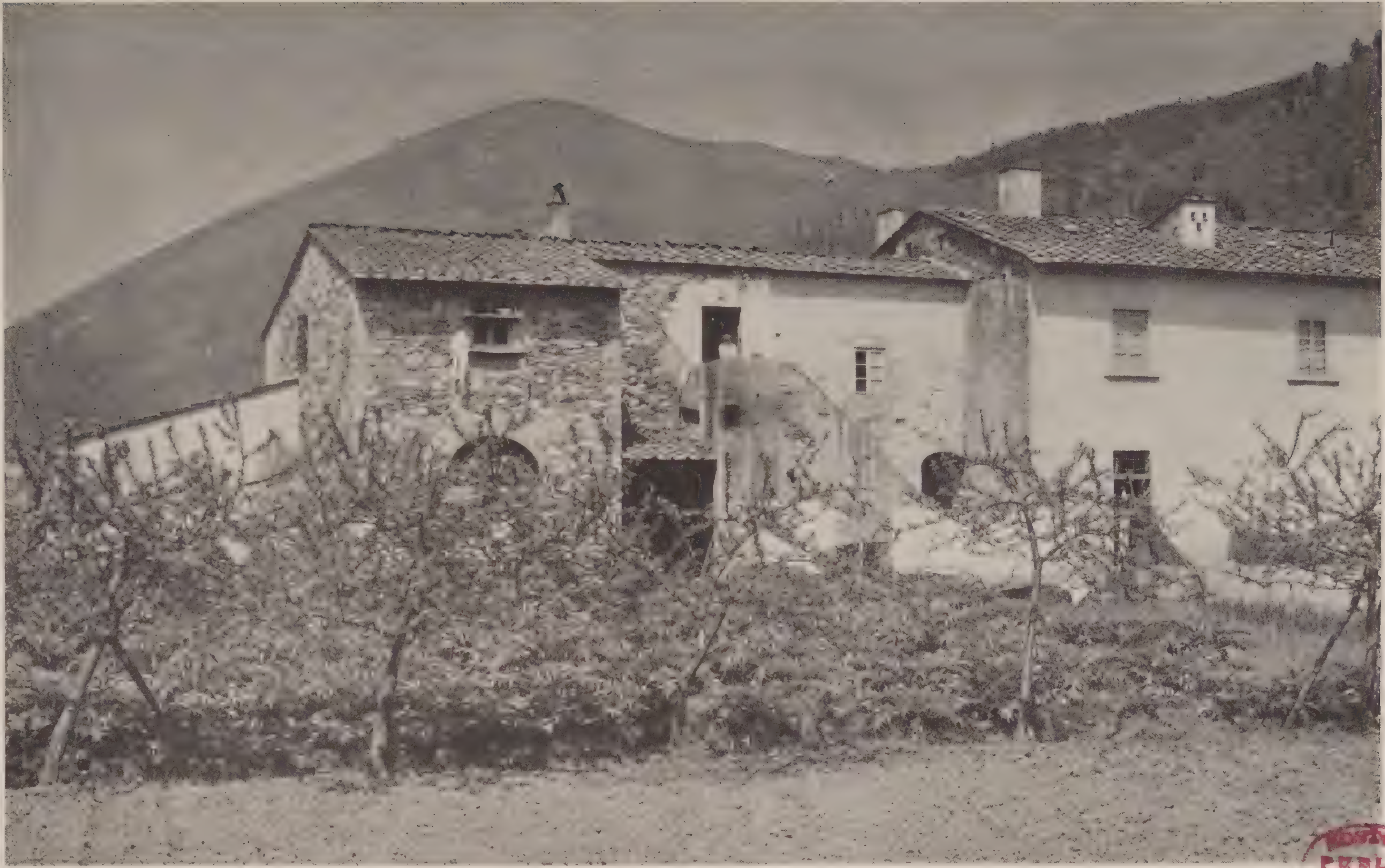

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FARMHOUSE AT MOLINA DI QUOSA, NEAR LUCCA

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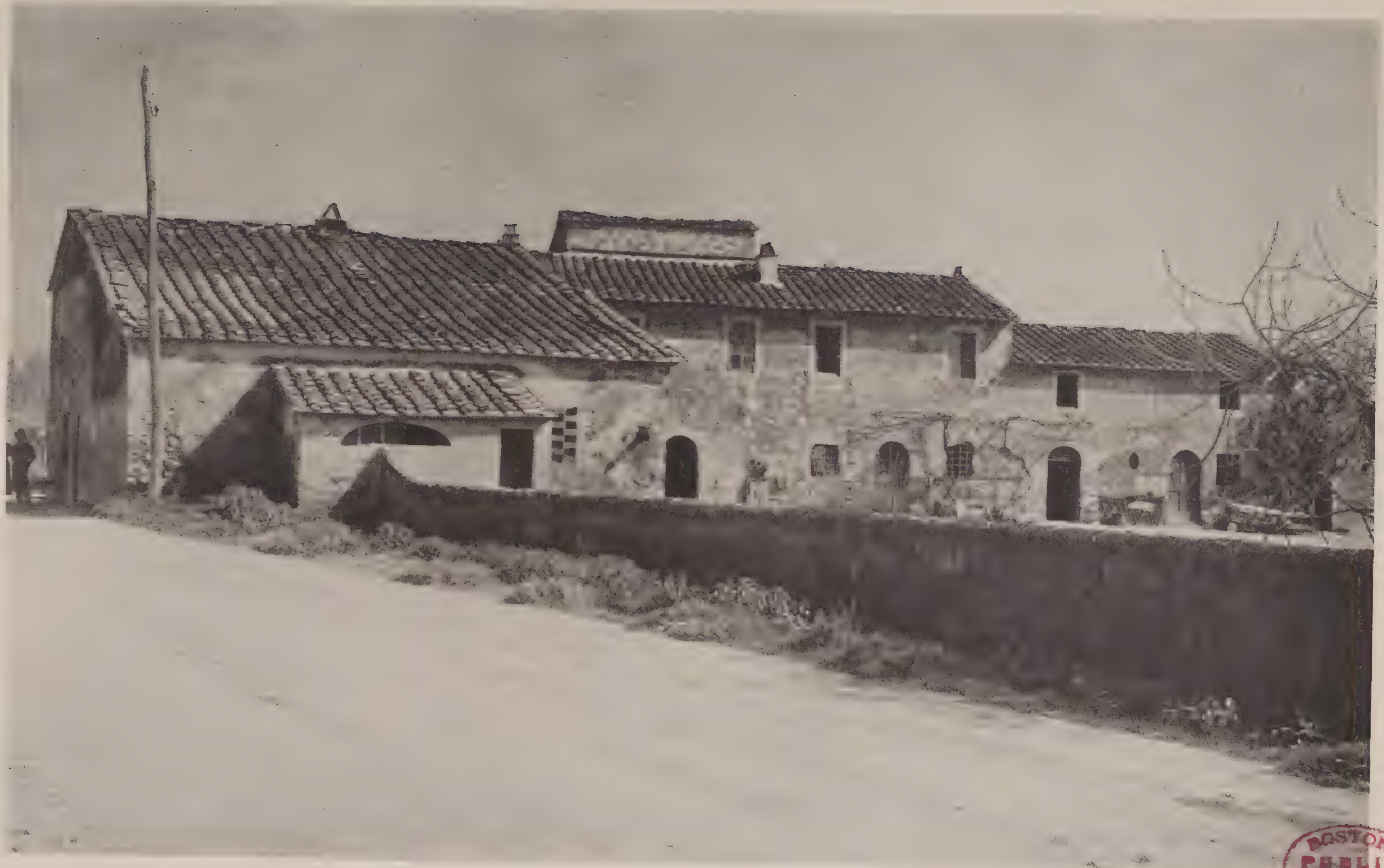

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FARMHOUSE AT MIGLIARINO

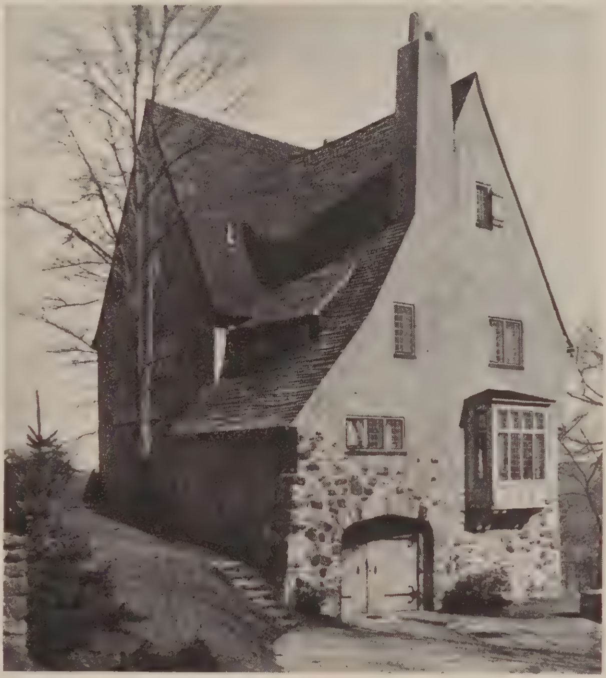
The Forum Studies of European Precedents; Plate 24

SMALL BUILDINGS

The English Cottage Type Dwelling

By LELAND HUBBELL LYON

Editor's Note — In this number of The Forum there begins the publication of an additional 24-page section which will be permanently devoted to the Architecture of Small Buildings. Here will be found, in text, plan and illustration, selected examples of recent work from all parts of the country, covering every type of small building from houses to hospitals; in fact the only limitations will be those exacted by good taste, logical plan, sound construction and moderate size. The treatment of this new section has been carefully planned to make it of the utmost practical value to the architect, by which standard it is to be judged. Comments suggesting improvements or changes in this new feature will be welcomed and given careful consideration by the Editor.



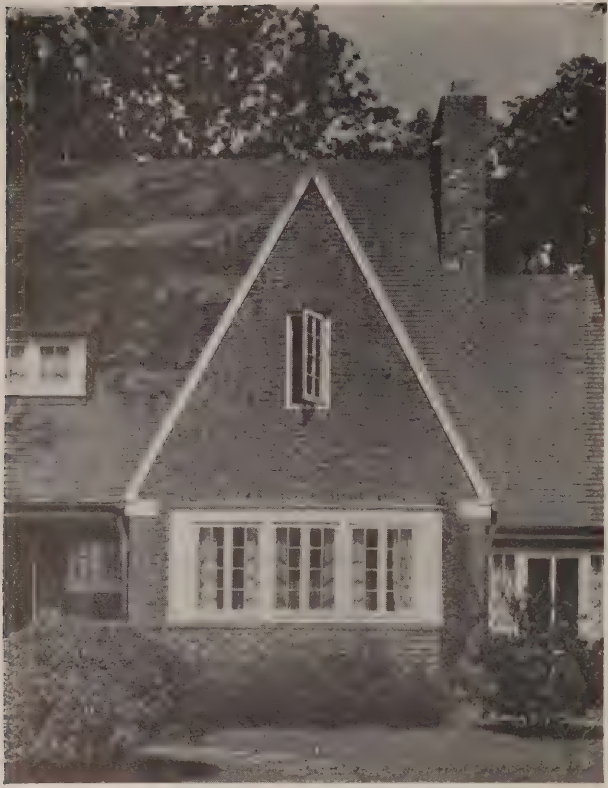
House at Riverdale, N. Y.
Julius Gregory, Architect
(See Page 43 for Plans)

THE cottages of England are of a development based on practicalities and not on affectation in any case, and have never through the ages needed ornamentation to make them interesting. Houses of the strictly Colonial type have been described as "rectangular boxes with various sloping covers," and they are nothing more or less. Their proportions were often most pleasing, but invariably derived through the use of quite definite rules. Their greatest charm was due partly to the accuracy of proportion, but mostly to the extremely interesting settings which now surround these old houses, the development of years.

The early English builders understood better than the builders of any other time the proper use of materials, and their construction was always sturdy and durable. Many of our English type cottages in this country fall down miserably as artistic successes because their designers have not taken the trouble to put themselves in tune with the spirit of the early English builders, and their work becomes exceedingly affected and stagey. Every detail of construction and every kind of material used in the English cottage had its reason, and therefore it is impossible to take any old plan whatsoever and, through the use of some sharp gables, slate roofs and endless variety of materials, roughly put together, make a proper English cottage.

The facades of these cottages are interesting mostly from the standpoint of composition. The gables were usually well proportioned, and their wall surfaces sometimes broken up by an extremely irregular but interesting fenestration.

Evidences of scholarship, learning and a knowledge of building and art in a sense understood by us today, are seldom found in the English cottage. The craftsman carried on from generation to generation the tradition of the locality in which he worked, and his gift to each building was his best of simple and direct workmanship, using the available materials as he knew how, and always inspired with ideas as natural as they were unconscious. The tremendous variety in the types of English cottages is due to the fact that England was divided into small counties and each county seemed to have its own traditions and of course its own local materials. In one county we find cottages of brick, in another of stone; even the bonding of the brick and the size and the color of the stones constantly vary. The surfaces of all materials used were expressive. Because of the fact that English cottages were built in such variations of materials, there is now a tendency to use our present imitations of these materials without regard to their propriety, with the result that our countryside is filled with dozens of crooked little houses with all sorts of queer tricks, and which are posed as English cottages. The range of materials presented for consideration when building a cottage of this type is endless. We have timber and plaster, timber and brick, entire walls of brick, walls of many kinds of stone laid in many different ways. Walls of



The Value of Carefully Studied Scale Is Well Illustrated by This Pleasing Gable
Detail from House by Leland Hubbell Lyon
(Shown on Page 41)

timber covered with hanging tile, sometimes timber walls covered with weather boarding. Roofs of slate, thatch and flat tile, sometimes of hand-rived shingles, floors of stone, waxed tiling, oak and slate.

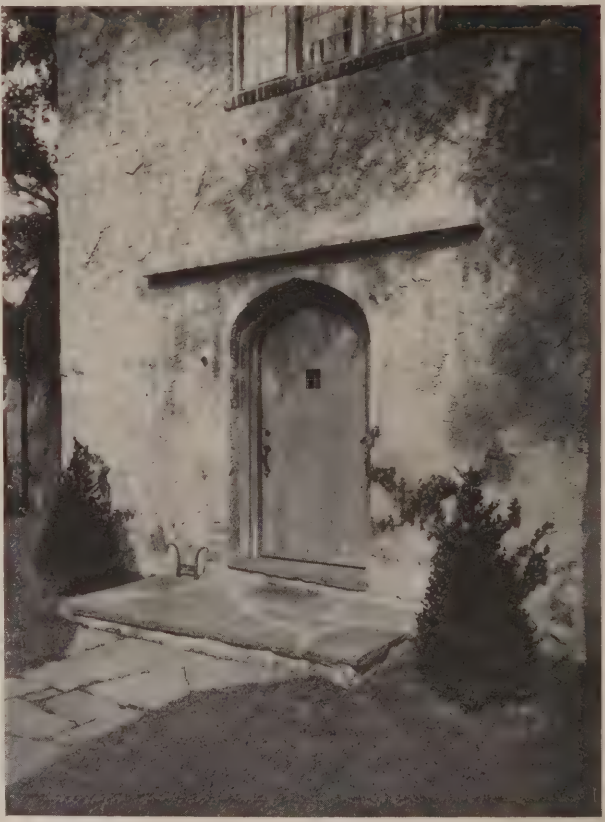
The English cottage possesses a vitality and freshness that make it extremely tempting, and the little buildings, no matter in what period they were constructed, are never harsh.

The American crib of the cottage of England is generally a miserable failure because of the fact that the cribber lost entirely the true plan, and after that failed to observe the many small refinements of workmanship. It would be far better if he would profit by studying the English plan and by applying these plan principles (mainly the principle of honesty and common sense) to his problem, and then let his facade develop from his plan. Let him use materials found in this country in their proper places, and not try to imitate beautiful old handmade materials by using improperly chosen manufactured products, and most deplorable of all, by perpetrating all sorts of ungainly and grotesque tricks with these materials.

The simple brick or stone cottage can be designed on English lines perhaps more easily than those of brick and timber or plaster and timber, because it is not necessary when using these materials to fake supposedly timber-framed walls. It seems almost criminal to plank ⅞-inch boards on a stucco wall and brand the result as an "English cottage." There was nothing in the construction of the prototypes of these cottages which was not necessary and which did not perform some function. Why tilt up the ridge of a roof at the gables and sandblast the corner braces ⅞ inch thick, and which, by the way, usually brace the wrong way, when English roofs were invariably built without ridge boards and were more likely after years to present to the eye a rather wavy line, slightly higher perhaps over truss points, but never but slightly tilted at the ridge ends, and when every timber in a building frame was put in to do work?

The cottages of the Cotswolds, which were generally of stone, present great possibilities, and can be and have been the inspiration for some splendid examples in this country. This type can be constructed without affectation. We have our fine limestones and seamed faced granites to choose from for the walls, and plenty of good slate for the roofs. The brick cottage is also a fairly safe type, and a very pleasing texture in the walls can be obtained by using common clinker brick, and even though the brick is only of veneer over a wood frame, it can be laid in a proper bond by breaking the bricks in the header courses in half. Roofs of pan tile, slate, or even of wood shingles are in good taste.

The brick and timber, or plaster and timber, types are extremely difficult to do. It is, of course, possible to construct actual oak frames with members mortised, tenoned and pinned together and then the various panels filled with brick or plaster, but this is hardly practical, for it brings up many structural and



Detail of Door and Stucco Finish of House at Riverdale, N. Y.
(See Pages 33 and 43)

weatherproofing problems which the writer has found through actual experience to be practically impossible of solution. The movement of the timbered frames is so great that it is next to impossible to maintain a tight joint between the brick or plaster panel and its enclosing frame. If the genuine timber construction is not used, there is left but the alternative of a fake frame, and why employ this and call the structure an English cottage, when it lacks absolutely the sincerity and honesty of the works of the old English builders? Why not leave off all unnecessary details? Let it be an English cottage because it is the result, first, of a plan developed as the English plans were, from the lay of the ground, the points of the compass and pleasing vistas; and then because its facades are projected from this logical plan, with openings located where light and air are desired, and, finally, practically roofed without forced gables, flat decks and so forth.

In the devolopment of planning of an English type dwelling there are no standards except the proper provisions for giving sunlight and vistas. As an example, however, we can take a hypothetical building site which is a lot 80 by 130 feet, located in a wooded section of attractive, rolling country in a suburban district, and it is assumed that this lot is on the east side of a street which runs approximately north and south, and that in contour it slopes slightly. Two approaches are desired for the house, one a walk and one a driveway, the two fulfilling all possible requirements. The garage driveway is located on the north side because the service side of the house is naturally on the north side, which is cooler and provides better working conditions. This naturally leaves the southern side of the house with its eastern and western exposures as the best available part of the plan for the location of a sun-porch. It is also true that in this instance, a point which should be studied, this location is best from the viewpoint of prevailing breezes in summer, so that this can be a pleasant screened porch in summer and enclosed useful space in winter, because radiation will be extended to this room. It has been found that with properly constructed windows and wall radiators on two sides, this room is warm on the coldest day possible in any climate in this country. With such heating facilities and ample sunlight provided through proper orientation, it is found that plants grow luxuriantly during the winter months.

Sunlight Governs the Location of Windows
Detail from House Shown on Page 43

The Central Roof Pitch Was Determined by Requirements of the Second Floor Plan as Described in This Article

The north side of the house having been selected for the service side, the service entrance is naturally placed there, while the main entrance is on the west side facing the street to form a natural approach. It may be noted also that the long dimension of the house parallels the street, first, because a more impressive appearance is developed in this way, and, second, because this again takes advantage of light and air. The plan of such a house as is referred to is to be found on page 41 following. It will be noted there that the central portion of the plan is given over to an entrance hall and dining room.

One reason for this is that the dining room does not need a westerly exposure, so that this is a good opportunity for locating the hall on the west side and giving the dining room the desirable easterly exposure with sunlight in the morning. Also, the vista from the dining room is across an open space to a fine group of oaks, which in combination with sunlight and prevailing breezes from the southeast, provides ideal natural conditions for the dining room at the time when it is of most service.

The living room is naturally located on the side away from the service end and is arranged in plan to take advantage of all natural conditions—morning light, afternoon light, cross ventilation—and is contiguous to the sun-porch, and through the windows the best vistas are framed. A point which is worth noting is that the bay window shown on the front side of the living room was put into the plan primarily to establish a broader range of vision, which includes several vistas, including that of a small wooded lake which could not be seen from the living room except for this feature. This is the reason why the sun-porch was not extended to full depth of the house but was set back sufficiently to allow a window giving an attractive vista from the living room.

While those responsible for the planning of the original cottage type house of England were not technically trained to an understanding of orientation, they did have a full appreciation of the attractiveness of nature as a setting for a home, and if their plans may have at first seemed haphazard, it is always possible from the plan to trace the location of attractive vistas, to know the direction of prevailing winds, and to understand the English appreciation of sunlight in the house as well as in the garden.

The stair hall having direct access to the entrance hall located in the northeast corner of the house and the stairs turning up completely to one gable end, the natural lighting for the stairs is through narrow vertical casements through which the afternoon sun has access. The space under the stairs, which often is wasted, is used to care for a small entrance which might almost be called a carriage entrance, and a lavatory in conjunction with it makes this a particularly valuable feature when returning home from a dusty motor ride or when the children come home from school. The regular service entrance and kitchen facilities take up the remainder of the first floor plan and are designed from the viewpoint of utility, the principal factor in placing this section in the plan having been accomplished by putting the kitchen on the cool side of the house and back where its activities are screened from view.

It is interesting to note that the second floor was laid out before the elevation was finally developed, instead of following the usual course of letting the second floor plan be governed by the first floor layout and the demands of the elevation. There were practical reasons for this procedure. In the first place, it was desired to have all bedrooms on the east side of the house, which gives the morning sunlight and also is the warmer side in winter. The rooms were laid out and the long hall located on the west side, and only at that time were the height and pitch of the roofs on the westerly side of the house developed. With the westerly roof pitched to slope up sufficiently to give headroom in the long hall, air cushions and storage space were naturally provided on the west side of the house to act as insulation against the cold northwest wind. The result of careful planning here is that there is only one north bedroom window in the house, and only one-tenth of the whole bedroom exposure is on the north side. For obvious reasons the sleeping porch is located on the southeast corner, where it has the best light and the greatest possible ventilation and protection. It will be noted that the maximum protection against the winter was gained in planning the second floor without sacrificing cross-ventilation which is established at three points: through the hall window, the small central window and the bathroom window, all on the west side of the house.

These points established in the development of the specific planning of an English cottage type house are given because they have general application to any such plan and point by point may be made helpful in the particular design which the architect may be working on.

A great deal might be said about scale of the English cottage, and unless this element of the design is properly considered the entire charm of the old buildings will be lost. The ceilings must be low, as low as 7 feet, 5 inches to 7 feet, 10 inches—they were frequently lower in the cottages of the English countryside. Doors must not be more than 6 feet, 6 inches high. Window openings must be very small or may consist of a group of small window units arranged either horizontally or vertically. Gables and roof lines must be definite, and there should be no queer dormers or roof decks to spoil the sharpness of these lines.

Cottages of this type should nearly always be set very close to the ground, and the approach should cover a practically level grade, sloping just enough to carry off water. Great care must be taken in laying out the landscaping for these buildings, and a great deal can be done through the judicious use of wall vines and trimmed privet. Harsh evergreens should be used very sparingly, if at all, to be consistent. Much also may be done by means of garden design to give the proper surroundings to an English cottage. Of no country in the world is what may be called the "garden tradition" so strong and characteristic, and the English cottage garden, happily, may be carried out in complete accord with tradition at no great cost. But in the garden design, as with the design of the house proper, care should be taken that it be not strained or overdone. As has already been suggested, success with the cottage depends upon use of correct materials, and upon care combined with restraint in their use, and so too in the garden with its old fashioned shrubbery and motifs.

Casement Windows for the English Cottage

An examination of the illustrations of buildings of the English cottage type in this issue of The Forum proves that architects fully appreciate the value of the casement window as an aid in developing the strong English feeling which distinguishes the type. It is fortunate indeed that it is thus possible to bestow character at precisely the spot where it is most needed. The windows of a house have been called its eyes, and just as the eyes of a human face give expression to the countenance, so the windows of a house determine its character and establish what might almost be called its personality. The exact degree of character which the use of casements gives cannot always be realized until one sees near together two houses almost alike, one of which has its windows arranged casement fashion, while the other has not.

That casements are historically correct for the English home in most stages of its development is of course evident, for in one form or another they were used in England from the beginning until the reign of William and Mary, when the so-called "guillotine" or double-hung window, imported from Holland, came into fashion, to be identified with buildings of that and the succeeding Georgian periods; and the casement agrees admirably with what is, perhaps rather loosely, known as the "modern English cottage" type, a form of architecture which is widely popular. There are several varieties of casements,—wood, hollow metal and steel,—all of which are in wide use.

The practical advantages to be obtained by use of the casement are obvious. It makes available for the admission of air the entire area of a window's opening, instead of merely as much of the area as can be opened by any conceivable arrangement of the sash of a double-hung window,—which never, by any feat of ingenuity, can be more than one-half. This is an advantage not always appreciated, except during the torrid days and nights of an American summer. Then again, since casements as a rule open out and not in, they can be securely fixed at any angle desired, and this is frequently helpful in deflecting into a room any air currents which may be stirring. But possibly the advantage which most frequently secures the use of casement windows is that such a window requires no weights to balance the sash, and it is therefore possible to closely group a number of windows, as is frequently done in English domestic architecture, separated only by slender mullions instead of by the spaces required for the cumbersome boxes necessary to accommodate one or perhaps more sets of weights and chains. Since weights or weight boxes are not used, construction is made simpler and less costly, and it will never be necessary to tear away the woodwork of

A Living Room of the English Type; Long and Low, with Casements and Paneled Walls

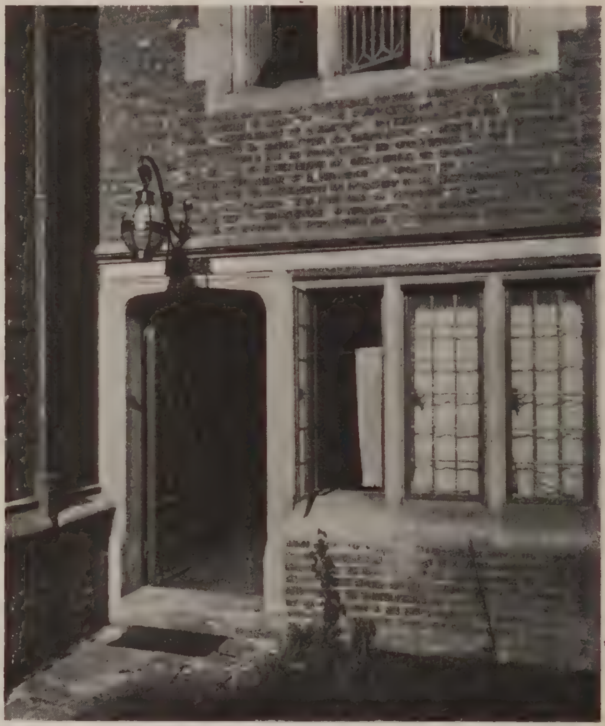
Casements in House of English Type
Alfred Hopkins, Architect

the window's architrave to repair the weights or to renew or disentangle their chains or cords.

The designer, when he is planning for the use of casement windows, might bear in mind the fact that they are in a sense a relic or a survival of the Gothic age and might well be treated accordingly. The chief point to be remembered is that where the walls of the building are of any thickness the casements should be set near the *outer* face or surface of the wall, which will of course leave the greater part of the wall's thickness as a reveal within. This works out to advantage in two ways, since with the casements placed near the wall's outer face there will be little to interfere with their being opened more widely than when set far back within thick walls, while inside the house the reveal (if it be deep enough) may be splayed on the top and the sides or even on all four sides, or else there may be used a sill of some appropriate material, all of which could hardly fail to give a heightened English character to the interior. Casements aid greatly in bestowing charm.

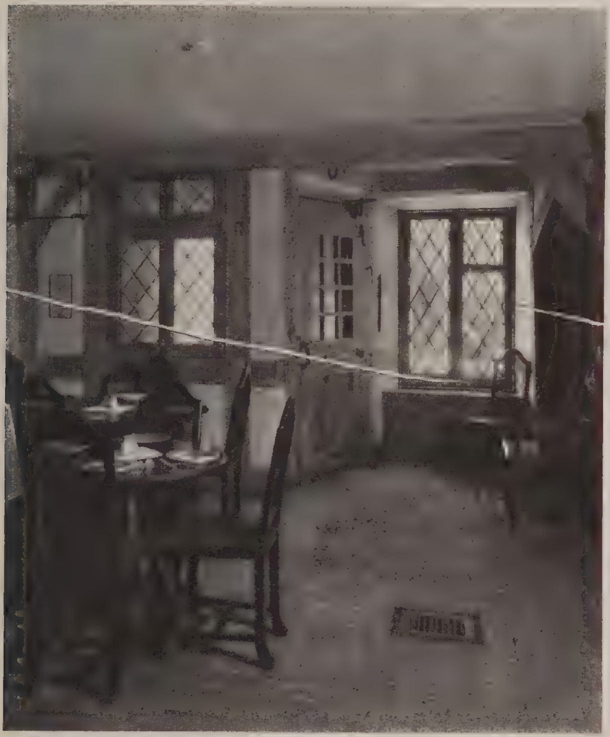
Ornamental Plaster and Leaded Casements

There are several objections which are sometimes urged against the use of casements, but it will be found that when such windows are properly made and correctly installed these objections break down. For example, it is sometimes thought that casements which open out are likely to be torn loose from their hinges by the force of the wind; but this is rarely possible when use is made—and it always should be made—of the devices made for holding a window fixed rigidly at the angle desired, which also act as braces to strengthen the casement. Housekeepers have sometimes objected to the use of casement windows on the ground that, particularly upon upper floors, it is difficult to wash their outside surfaces from within. But an examination of the illustrations of any house having its windows fitted with casements will show that such casements are rarely if ever wide enough to make impossible the passing of the arm around them to reach the outside. Many casements are, in fact, equipped with a skillfully



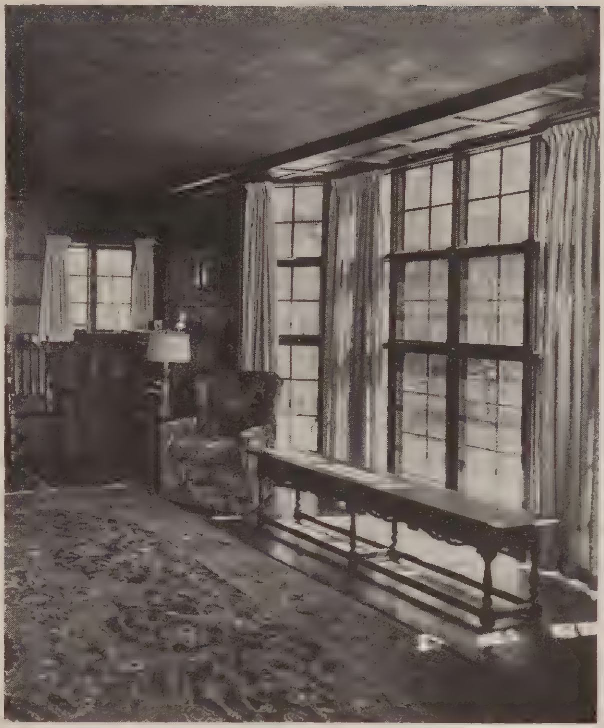
Use of Casements Makes Possible Opening of Entire Window planned form of hinge which permits the casement to be turned literally "inside out"; in this way the inner surface of the window may first be washed, and the casement then be turned about so that the outside surface is presented for cleaning.

Another objection sometimes urged against use of casement windows is that they are not always weatherproof, and that during driving storms water has been known to be driven in. Of course when casements open in, which is sometimes the case, it is not always possible to make them proof against the weather, but where they open out—as they should and, in fact, almost always do—the construction of the casements renders them watertight. The only other objections which sometimes prevent the use of casements are that they interfere with the use of wire screens and also with the use of window shades and draperies. These objections, however, are not well founded, since when casements open out they are manipulated in complete independence of the wire screens, the screens sometimes rolling up, in window shade fashion, sometimes hinged to open in. Window shades and draperies should never be attached to a swinging casement but to the inner surface of the architrave. Arranged in this way, window shades may be raised and lowered without reference to casements, and draperies may be hung without danger of being interfered with.

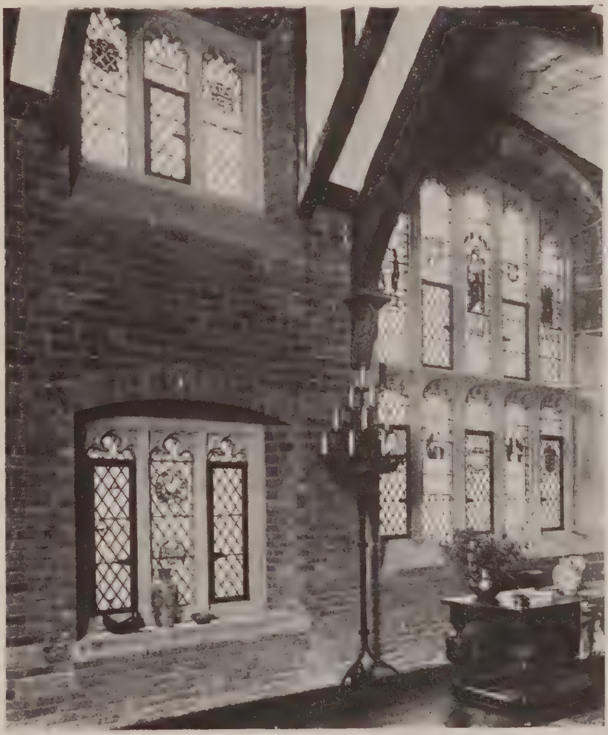


Simple Leaded Glass in Wood Casements
Thomas H. Ellett, Architect

A word, in fact, might be said upon the use of draperies at windows fitted with casements, since, as has already been said, many mistakes have been made in draping them incorrectly, and as a result the casement has sometimes been thought to be awkward or impractical, whereas it is neither. As a general principle to follow, nothing should be attached to a casement itself, least of all when it swings out. Window shades, as already said, should be attached to the window's woodwork and placed *above* the opening; "sash" or "glass" curtains should be hung from slender rods or poles, which are likewise fixed to the jamb, and such curtains should



Casements Make Possible Close Grouping of Windows



Casements Within Deep Reveals

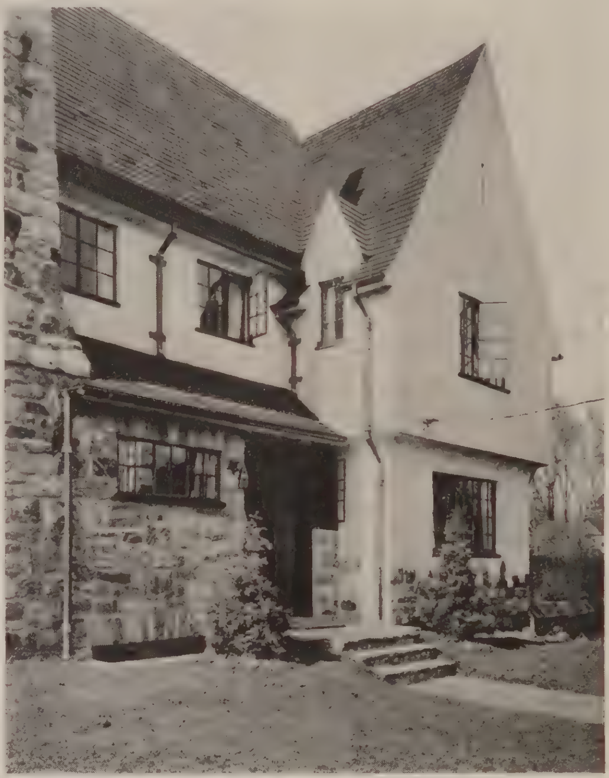
come not to the floor but to the window sill. Heavier draperies should of course extend to the top of the window or group of windows and should fall to the floor, such curtains being hung upon a single pole across the entire window opening. Valances, either fitted to frames or merely hung, are useful where a window is unduly tall or where a number of openings are grouped, and whether valances are used or not the draperies should be so arranged that they may be drawn across the entire opening at night. The draperies, particularly when made with what are sometimes known as "French knots," are most successful when, even when they are drawn across the opening, they fall in folds sufficiently ample to avoid having a scant or meager appearance.

The use of casement windows has not always been fully understood by architects, and much less by the owners of houses in which such windows have been installed by architects; many a mistake has been made in their use, particularly when window shades on rollers have been attached to casements which open out, the awkwardness of which should have been self-evident. Familiarity with its use has now brought about the correct draping and decorative treatment of the casement window, and along with this better understanding there has naturally come wider use, which is an indication that there exists a keener appreciation of its advantages. Casements are rapidly growing in favor.

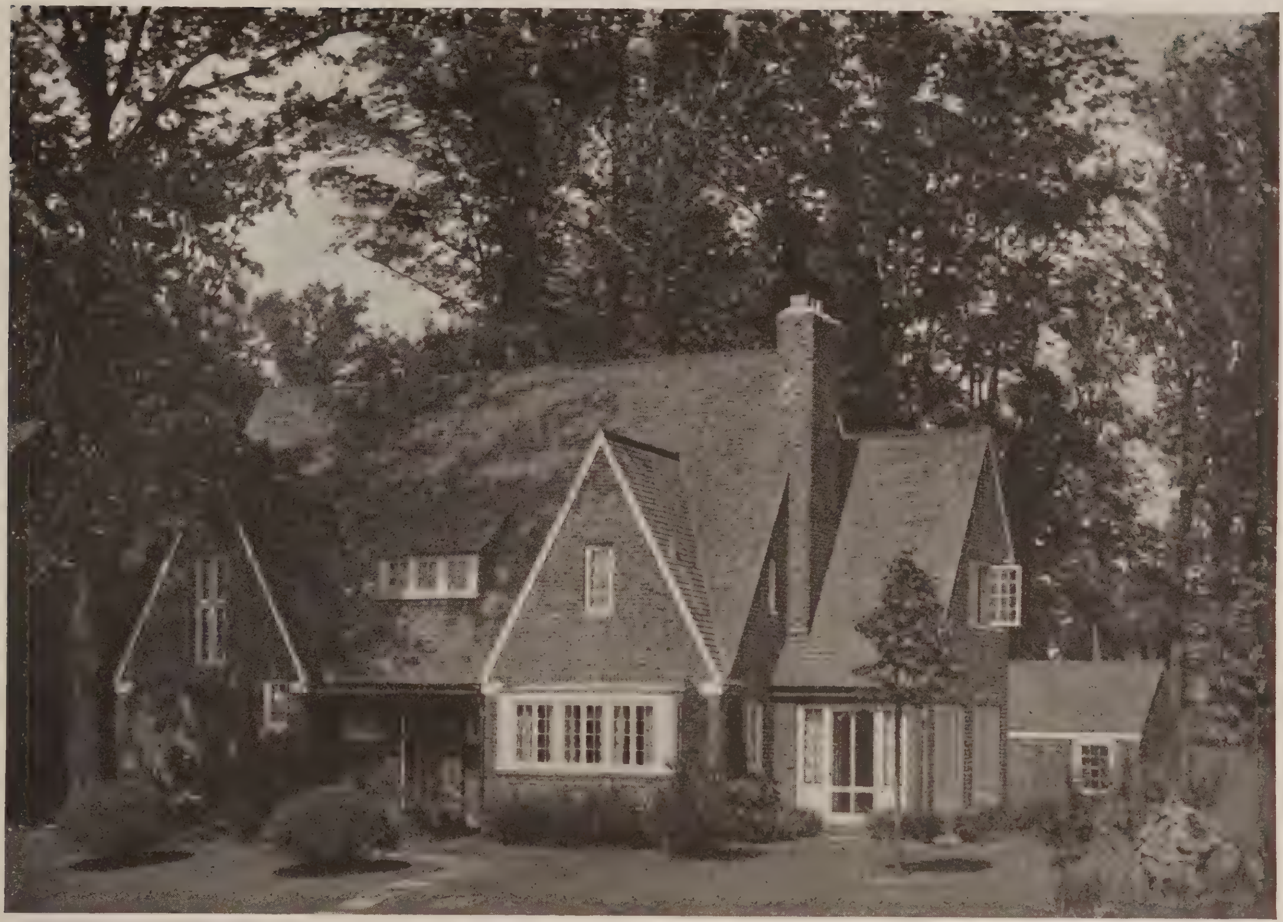
But the chief appeal of the casement in the eyes of architects is unquestionably upon the score of design. Since there is no necessity for installing weight boxes, the windows may be closely grouped, as already said, and design is likely to be improved by the substitution of narrow or slender mullions for the thick and heavy divisions which must otherwise be used. Another detail of interest in the design of the casement is in the variety of glass and the manner of its use which are possible when windows of this type are employed,—glass transparent or merely translucent, or combinations of either of these with fragments or panels of glass in color, leaded glass in diamonds, squares or other ingenious designs.

The interest which so often attaches to leaded glass in casement windows, while valued, is not always understood, but analysis will show that it is largely the result of variety of what might perhaps be called "texture." The small bits which make up a panel of leaded glass are held in position by narrow strips of lead, a metal so soft and pliable that it fails to hold the bits in strict alignment, and the varying approximations to perpendicularity produce the curiously irregular and uneven play of light and shadow that renders leaded windows so interesting.

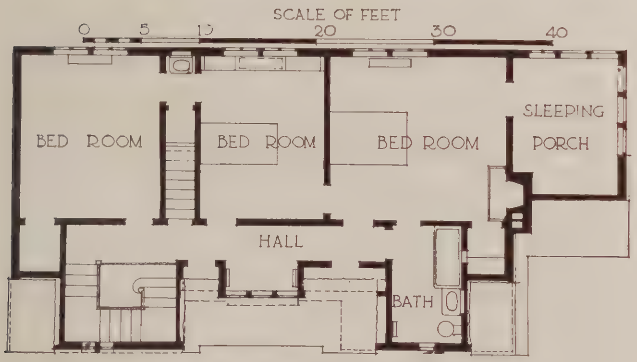
Added interest is readily given to casement windows by the use of the hardware and metal fittings or accessories of various kinds which are now easily to be had. The genius of the English, which made the English cottage so notable an architectural achievement, was lavished upon no detail more than on its windows, and the fittings which they designed have been reproduced and so studied that new fitments have been made in the spirit of the old, so that it may be said that at no time during the long history of English domestic building has there been available so great a wealth of the details which add so much to the casement's attractiveness. Among such accessories are the stops, braces or stays which, as has already been explained, hold an open window rigidly in position, the simple locks, bolts or fasteners by which the windows are secured, and sometimes the tiny ventilators of lead, often in circular or "wheel" form, which are set in the leaded casements.


Architecture of the "Modern English" Type Makes Excellent Use of Casement Windows

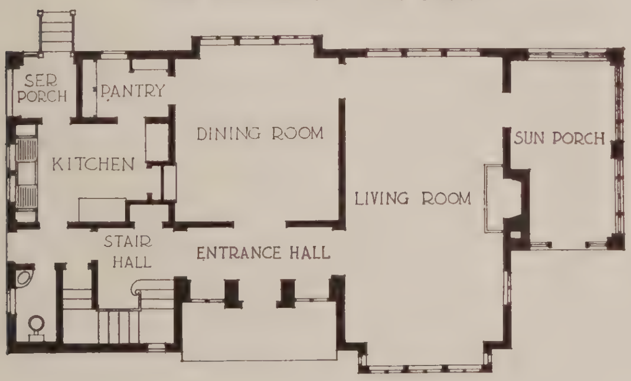
Unlike buildings of certain other architectural types, the English cottage, if it is to be a success and not merely a caricature of what it might and should be, must be developed in the materials which were used in England during the period concerned, and these materials must be used in the way they were employed by the old English builders. When failure is the result of an effort to build upon the English cottage plan, analysis will generally prove that such failure is due to using materials which while appropriate for building in certain forms, are not suited to use in this particular architectural style, or else that while the correct materials have been used, they have not been employed in the ways which tradition and good taste demand. If this be true in general of a building of the English cottage type, how particularly it applies to a detail as vital as its windows!



EIGHT-ROOM ENGLISH COTTAGE TYPE DWELLING AT NEW ROCHELLE, N. Y.
LELAND HUBBELL LYON, ARCHITECT



First and Second Floor Plans



THE success of this excellent example of the use of the English style in a small country house is due largely to the carefully studied scale of the details and the informal balance of the elements of the design. The rectangular plan is broken by two projecting bays of equal size on one side. To these bays interest is added by the dissimilar arrangement of the windows, which by their character and shape indicate and express the interior plan. The high and sharply pitched roof permits adequate headroom for the rooms on the second floor, at the same time adding much to the picturesque quality of the design. Locating the main chimney at one end allows an unbroken ridgepole, which gives an always desirable horizontal emphasis and obviates loss of space unavoidable when chimneys are inside. Repeating the slope of the main roof in the low wing containing the sun and sleeping porches makes these features of the plan an integral part of the whole design, increasing also the apparent length of the house. The main roof on the front is carried down to the level of the first floor ceiling, which gives an effect of greater height to the roof and provides a covering for the shallow entrance porch.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 1

English Cottage Type Dwelling, New Rochelle, N. Y.; Leland Hubbell Lyon, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
- Clinker brick veneer over wood frame.
- Brick very rough;—color range, deep red to few spots of purple.
- Copper gutters and leaders.
- Trim—white pine.

ROOF:
- Cedar shingles.

WINDOWS:
- Wood casements

FLOORS:
- First floor—oak, waxed.
- Second floor—yellow pine, varnished.
- Kitchen and bathroom—rubber tile.

HEATING:
- Hot water boiler controlled by thermostat.
- Enclosed radiators.
- Service hot water heated by means of small coal heater.

(Perspective and Plans on Preceding Page)

PLUMBING:
- All lavatories and toilets bracketed, leaving clear floor space underneath. Toilets with floor flush valves.
- Electric vacuum cleaner in cellar, piped through house.
- Gas range in kitchen.

INTERIOR MILL WORK:
- White pine trim.
- Birch doors, stair treads and handrail.

WALL FINISH:
- Living and bedrooms—papered walls—calcimined ceilings.
- Trim white enamel.
- Bathroom walls tiled.
- Kitchen walls enameled.

COST DATA

40,000 cu. ft. at 45c per cu. ft. $18,000

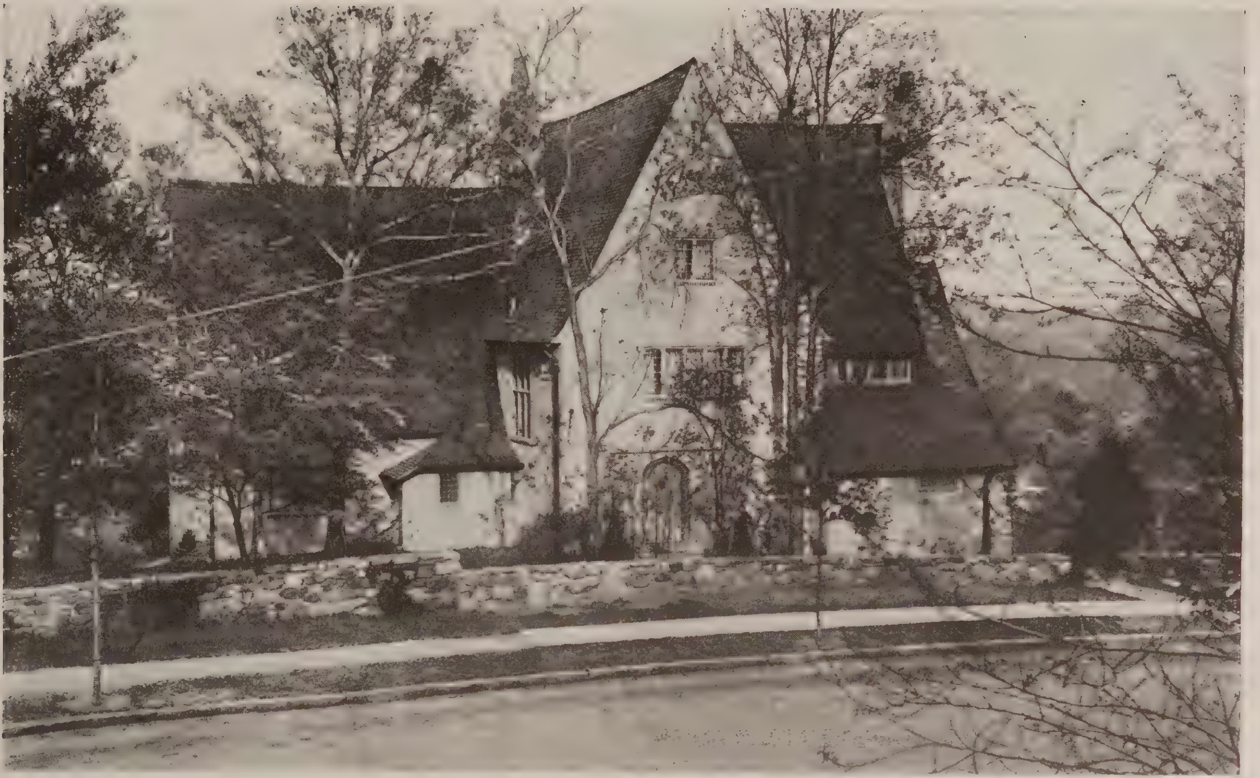
Not Including Garage

(Costs Figured at Present Local Prices)

A SIMPLE Colonial style has been used for the interior details on account of the owner's preference. All the woodwork is painted white, and old fashioned wallpapers have been used to decorate the walls. This use of Colonial detail is not inconsistent with the exterior of this English cottage, as all so-called Colonial work in this country was derived from English antecedents. The type of English architecture here used for the exterior design represents the traditional period between late Tudor and early Renaissance, and it has been developed in much the same materials which were used in England then.

Stair Hall

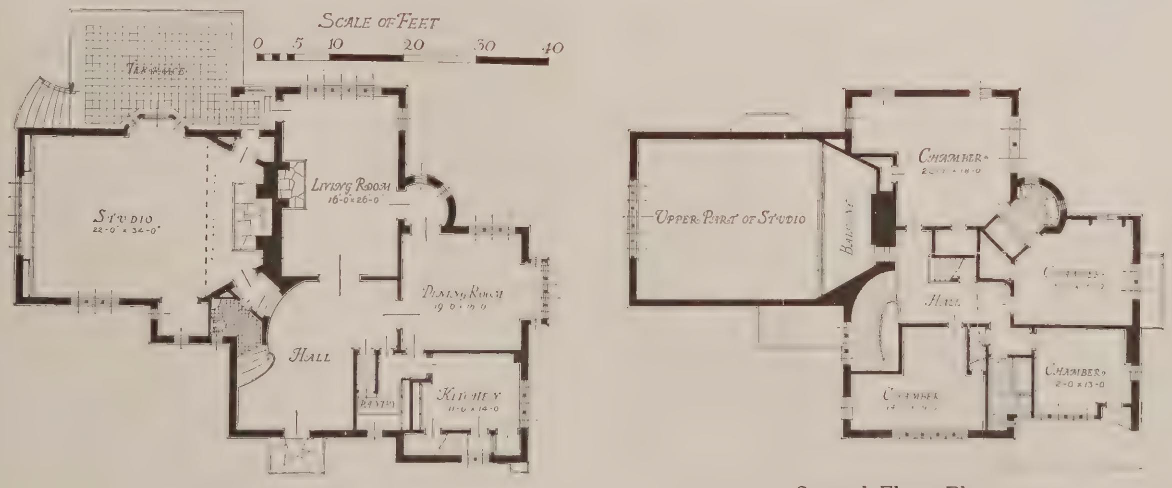
Living Room



COTTAGE IN THE ENGLISH STYLE AT RIVERDALE, N. Y.
JULIUS GREGORY, ARCHITECT

STUCCO and rough stone are the materials used for the exterior of this picturesque house, much of the charm of which is derived from the successful and attractive way in which the design has been adapted to the steep slope of the hillside on which it is located. Brick window sills emphasize the window openings, which are fitted with leaded glass casements. The high gable at the front of the house breaks pleasantly the mass of sloping roofs on either side. The entrance door is an interesting study of English detail. In plan, again, the house is unusual. Three steps lead from the entrance hall into a large studio at the left. The living room, at the back, has a wonderful view over a valley from a long casement window on the west, near which is a door leading onto a raised terrace. The dining room is reached from the living room by means of a small entry in a tower-like bay. This tower is carried down to the basement level of the house, from which a doorway leads to the courtyard of the garage; the garage is under the living room.

(Outline Specifications, Details and Cost on Next Page)



First Floor Plan

Second Floor Plan

FORUM SPECIFICATION AND DATA SHEET — 2

Cottage in the English Style at Riverdale, N. Y.; Julius Gregory, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on tile and stone; wood frame inside; stucco smooth, color deep buff, shading to straw.
Copper gutters and leaders.
Trim—oak.

ROOF:
Red cedar shingles, stained.

WINDOWS:
Metal casements, with leaded glass.

FLOORS:
First floor—tile and quartered oak.
Second floor—straight oak, stained, varnished and waxed.
Kitchen—rubber tile.
Bathrooms—encaustic tile.

HEATING:
Vacuum steam, controlled by thermostat.
Enclosed radiators on first floor.
Service hot water heated by means of small coal heater.

PLUMBING:
Brass pipes and copper boilers, used for hot water. Enameled iron fixtures throughout.

(Perspective and Plans on Preceding Page)

EQUIPMENT:
Pedestal lavatories in master bedrooms. Gas range in kitchen. Electric vacuum cleaner, operated by hand, connected with floor outlet in each room.

INTERIOR MILL WORK:
Straight oak trim throughout; doors, stair treads and handrail, oak.

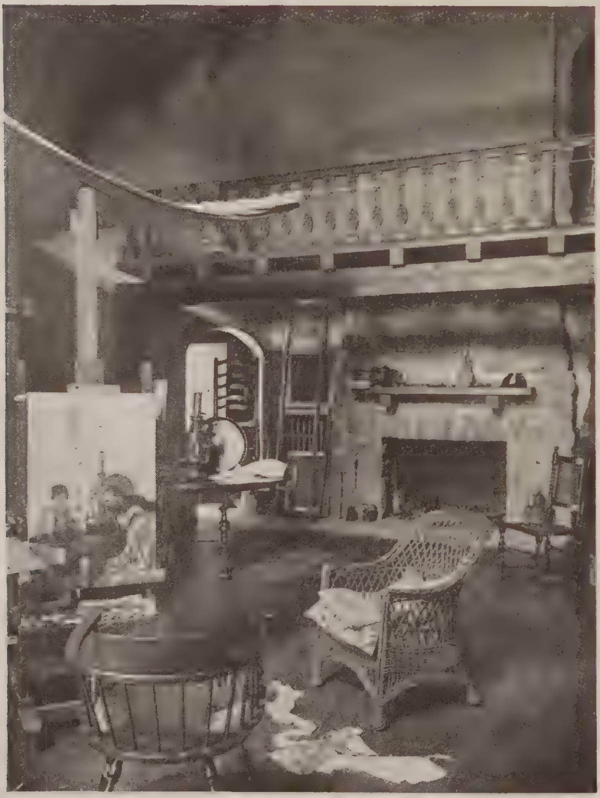
WALL FINISH:
Rough, sand-finished plaster used in studio, living room, dining room, halls and all bedrooms.
Bathroom trim, white enamel and walls tiled, 4 feet, 6 inches, with smooth plaster above.
Kitchen walls, smooth-finished plaster and white enamel.

TREATMENT OF INTERIOR:
Quaint character of oak woodwork, stained dark, and tinted rough plaster walls give interesting English effect. Second floor joists and beams left exposed, and stained dark in living room and dining room.

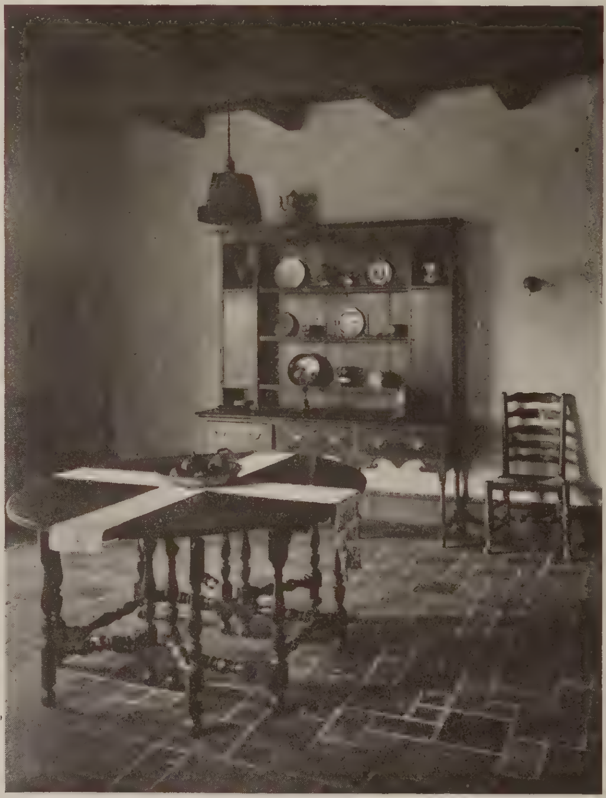
COST DATA

50,000 cu. ft. at approximately 50c per cu. ft. $25,000

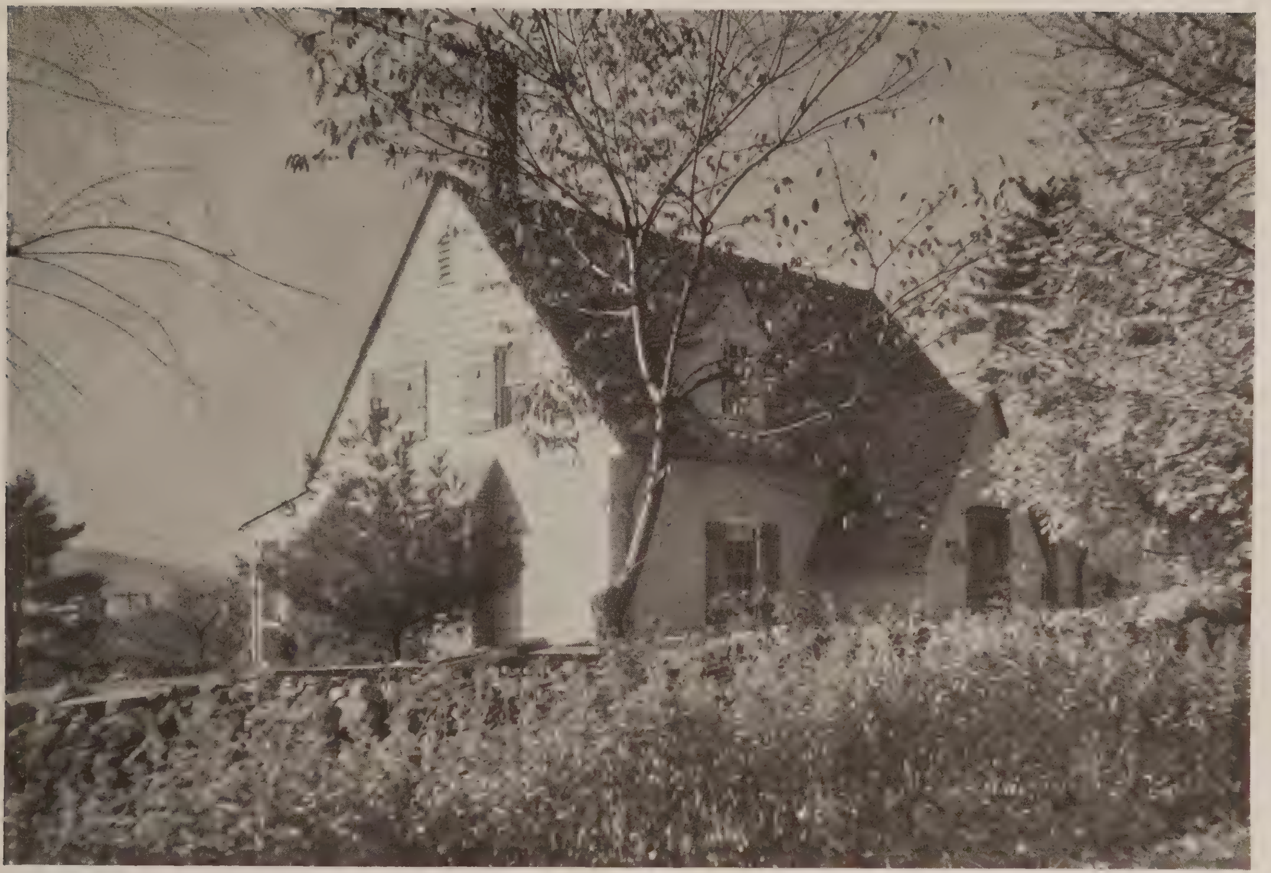
(Costs Figured at Present Local Prices)



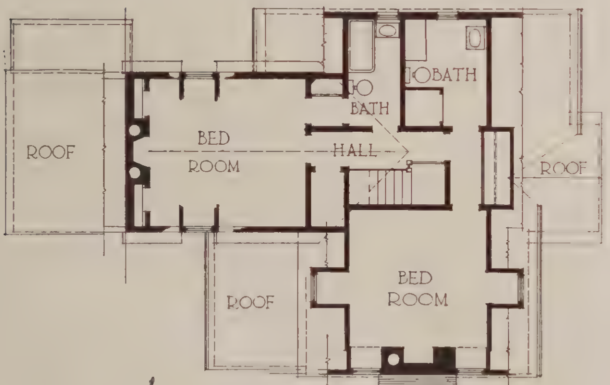
Detail of Studio



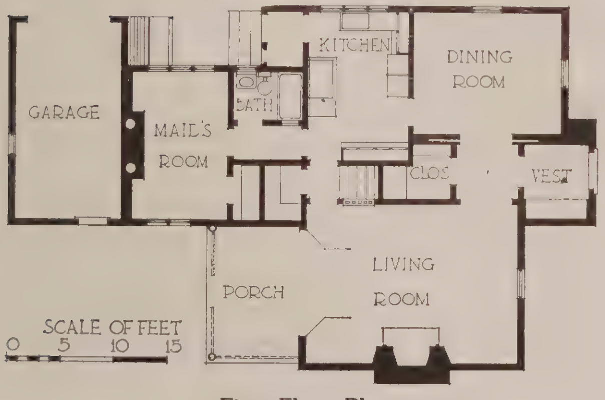
Detail of Dining Room



ENGLISH COTTAGE AT FITCHBURG, MASS.
PRENTICE SANGER, ARCHITECT



Second Floor Plan



First Floor Plan

ALTHOUGH wood is not commonly used for the exteriors of English cottages, there are many interesting and charming examples to be found in Kent, Sussex and Surrey, in which the exterior walls have been covered with wide siding in some cases, and shingles in others. The architect in this case has used wide and overlapping siding for the main walls of the house and matched siding for the walls of the little entrance porch. Although an inexpensive quality of slate was used for the roofs, the effect has unusual charm, due to the method of laying and the variety of colors secured. The slates, which vary in width, have been laid with unequal exposures and with care taken in the proper scattering of the colors, which range from dark gray to rusty brown and dull green. The three small dormer windows which break the roof slope add to rather than detract from the picturesque quality of this charming little house. The low eaves and steep pitch of the entrance porch make a delightful setting for the front door, on which quaint old strap hinges and a carved panel give unusual interest. The two plain chimneys have been carried up sufficiently high to give a definite vertical note to this otherwise horizontal design. Exterior chimneys frequently add much to the picturesqueness of a design, at the same time preventing the loss of floor space, unavoidable when chimneys are built inside exterior walls.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 3

English Cottage at Fitchburg, Mass.; Prentice Sanger, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:

Redwood siding, painted white, over wood frame.

Field stone laid to smooth surface for chimneys and foundation.

Copper gutters and leaders.

Trim—oak, stained brown.

ROOF:

Slates, varying in widths, colors and exposures.

WINDOWS:

Metal casements with leaded glass.

FLOORS:

Yellow pine throughout, painted green and spattered with white.

Kitchen—linoleum.

Bathroom—tiled.

HEATING:

Hot water system; exposed radiators.

Service hot water from small coal heater.

PLUMBING:

Hot water pipes, brass; copper leaders.

Cold water pipes, galvanized iron.

Toilet fixtures, enameled iron.

(*Perspective and Plans on Preceding Page*)

EQUIPMENT:

Detached, hand-operated vacuum cleaner. Coal range in kitchen.

Lighting, electric.

INTERIOR MILL WORK:

White pine trim, painted.

White pine doors, painted.

WALL FINISH:

All walls throughout the house, gypsum wall board, painted. No plastering used anywhere.

TREATMENT OF INTERIOR:

Old-fashioned wood mantels with cement-covered brick facings, and special hardware copied from old examples add antique effect to the interior. The joints in the plaster board are covered with wood mouldings on both walls and ceiling, giving interesting paneled effect.

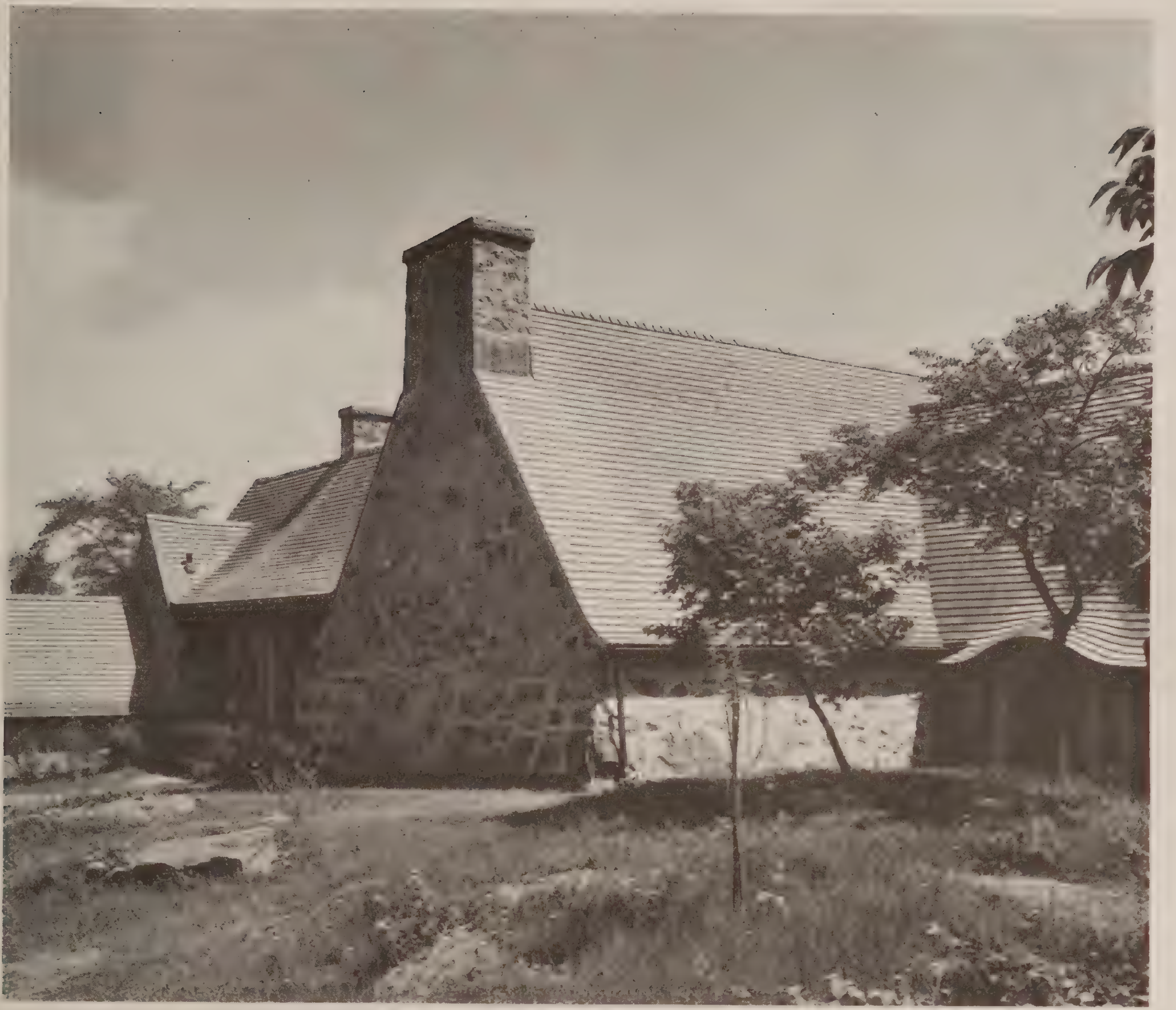
COST DATA

30,000 cu. ft. at approximately 56c per cu. ft. $16,800

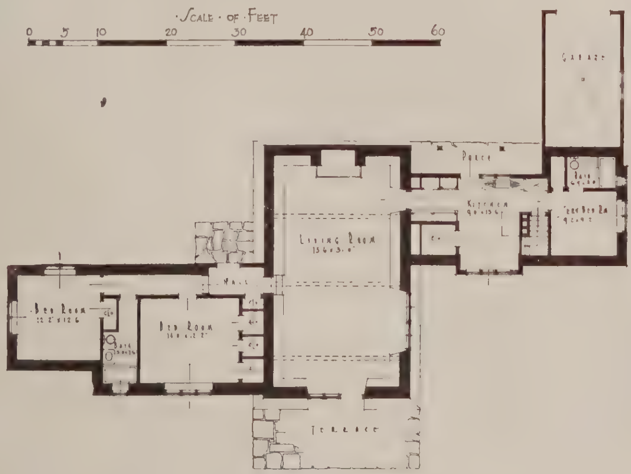
(*Costs Figured at Present Local Prices*)

Entrance to Garage

The Main Doorway



STUDIO COTTAGE AT SOUTH NORWALK, CONN.
FRANK J. FORSTER, ARCHITECT



Plan of Cottage

LONG, low roof lines and rugged stone and cement walls characterize this picturesque cottage. Both in elevation and in plan the large living room or studio dominates and forms a strong central motif, to which the bedroom and service wings are subordinated. The interesting, rambling plan shows the two master bedrooms and a bath logically located at one side of the large living room, and the kitchen and servant's bedroom and bath on the opposite side. The floor levels of the house, as well as the grouping of the several parts of the plan, have been carefully adapted to the rocky hilltop on which the house is located. From every point of view this house is interesting and pleasing. The slopes of the shingled roofs, which have been carefully studied, are slightly curved outward as they approach the eaves.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 4

Studio Cottage at South Norwalk, Conn.; Frank J. Forster, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:

Rough field stone, laid up in cement to a flat surface; joints varying in width and direction to suit stonework, giving the effect of stone laid up irregularly in concrete.

Walls of service porch, master's bedroom wing and garage wall, stone entirely covered with stucco.

Chimneys, stone with granite caps. Hand-hewn oak timbers, stained brown, used at main entrance and service entrance porch.

Copper gutters and leaders.

Trim—oak, stained brown.

ROOF:

Cedar shingles.

WINDOWS:

Wood casements.

FLOORS:

Quartered oak, stained brown, and waxed.

Kitchen and bathroom floors, rubber tile.

HEATING:

Hot water boiler. Free-standing radiators.

Service hot water heated by means of small coal heater.

(*Perspective and Plans on Preceding Page*)

PLUMBING:

All pipes and hot water boilers, galvanized iron.

Toilet fixtures, enameled iron.

EQUIPMENT:

Electric vacuum cleaner, attached and operated by hand.

Coal range in kitchen.

INTERIOR MILL WORK:

Quartered oak, stained brown, for all trim and doors.

WALL FINISH:

Two-coat carpet float, rough-finish plaster.

Bathroom floors and walls tiled; smooth plaster ceiling and walls above and tiled wainscot.

Kitchen walls, smooth plaster enameled.

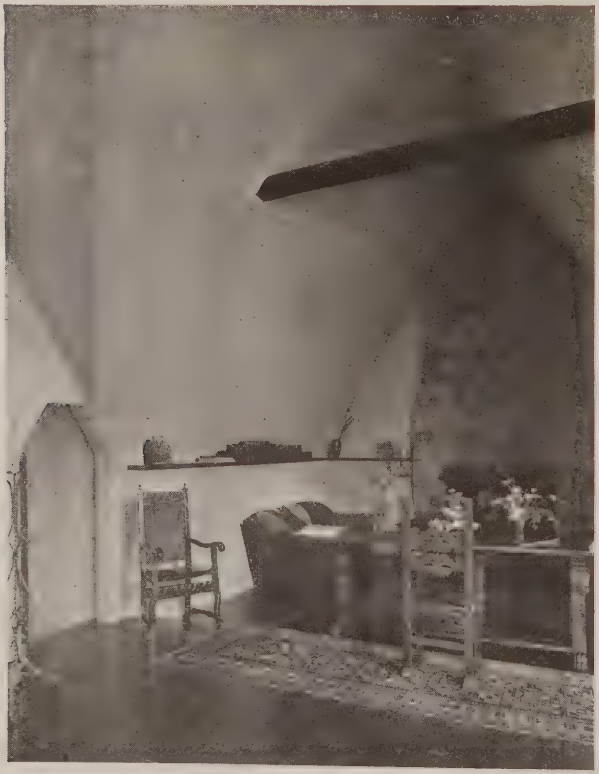
TREATMENT OF INTERIOR:

The strong character of the outside treatment of this cottage has been successfully continued within. Dark stained chestnut and oak floors, massive stone chimney breast in the living room and rough plaster walls throughout, give the desired uniformity of exterior and interior treatment.

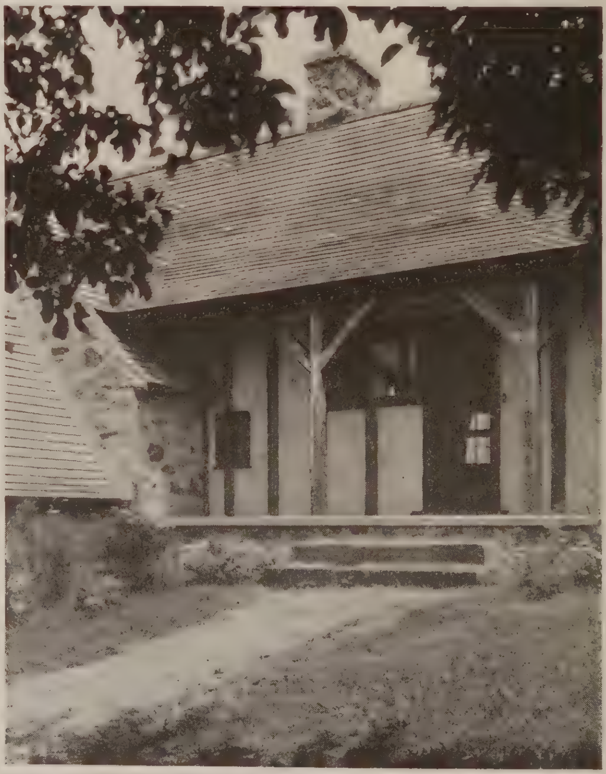
COST DATA

50,000 cu. ft. at approximately 45c per cu. ft. $22,500

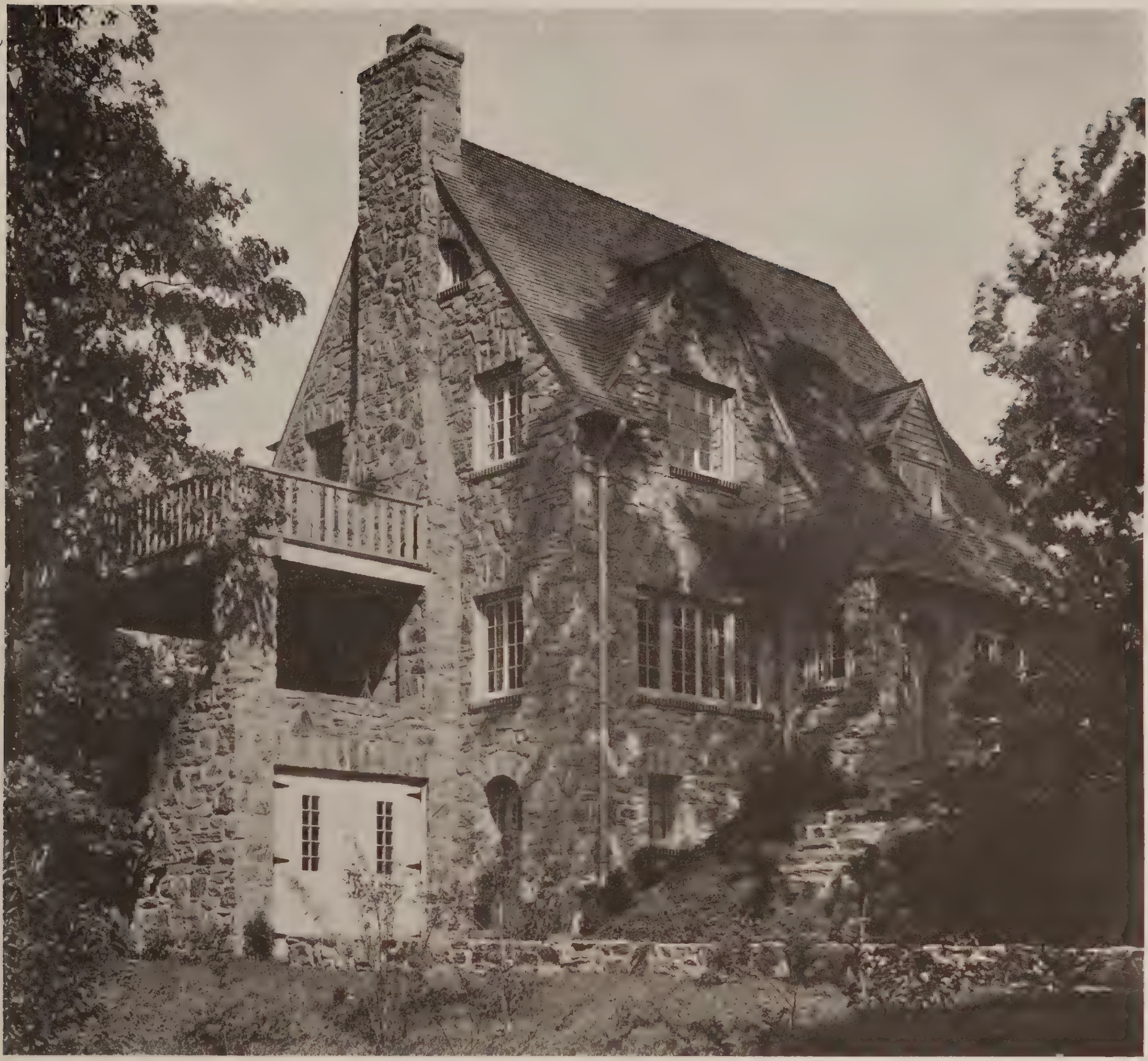
(*Costs Figured at Present Local Prices*)



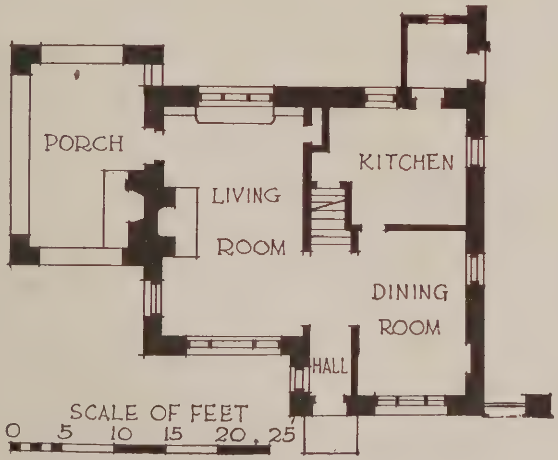
Detail of Studio Living Room



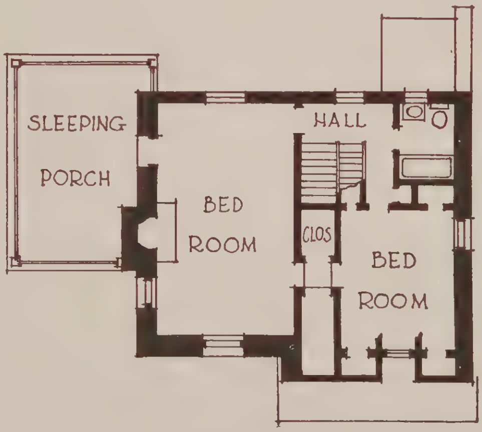
Detail of Kitchen Entrance



STONE COTTAGE IN THE ENGLISH STYLE AT RIVERDALE, N. Y.
JULIUS GREGORY, ARCHITECT



First Floor Plan



Second Floor Plan

(*Outline Specifications, Details and Cost on Next Page*)

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FORUM SPECIFICATION AND DATA SHEET — 5

Stone Cottage in the English Style at Riverdale, N. Y.; Julius Gregory, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:

Field stone, laid up to irregular surfaces; irregular jointing and brick window sills.

Gutters and leaders, galvanized iron, painted.

Stone chimneys with clay chimney pots.

Trim—front door, cypress stained; windows and garage doors, white wood painted.

ROOF:

Cedar shingles, stained.

WINDOWS:

Wood casements.

FLOORS:

Straight oak, stained and waxed.

Linoleum on kitchen and bathroom floors.

HEATING:

Steam, controlled by thermostat.

Concealed radiators below windows.

Hot water heated by gas stove.

(Perspective and Plans on Preceding Page)

PLUMBING:

Galvanized iron pipes and boiler; plumbing fixtures, enameled iron.

EQUIPMENT:

Electricity; gas range.

INTERIOR MILL WORK:

White wood enameled for trim, doors, etc.

WALL FINISH:

Textured plaster for all rooms except bathroom and kitchen, where three coats smooth-finished plaster, enameled white, were used.

TREATMENT OF INTERIOR:

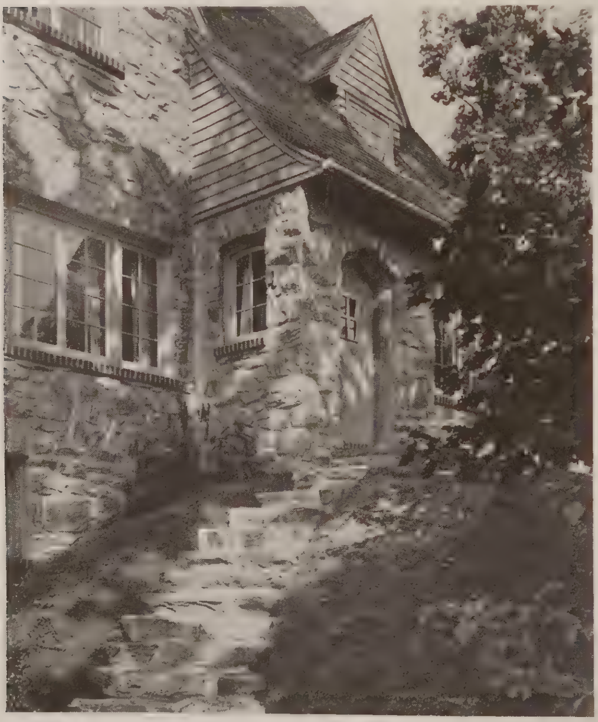
The rugged character of the exterior of this house is pleasantly carried out in the interior in the rough-textured plaster of all the walls, and the field stone fireplace in the living room.

COST DATA

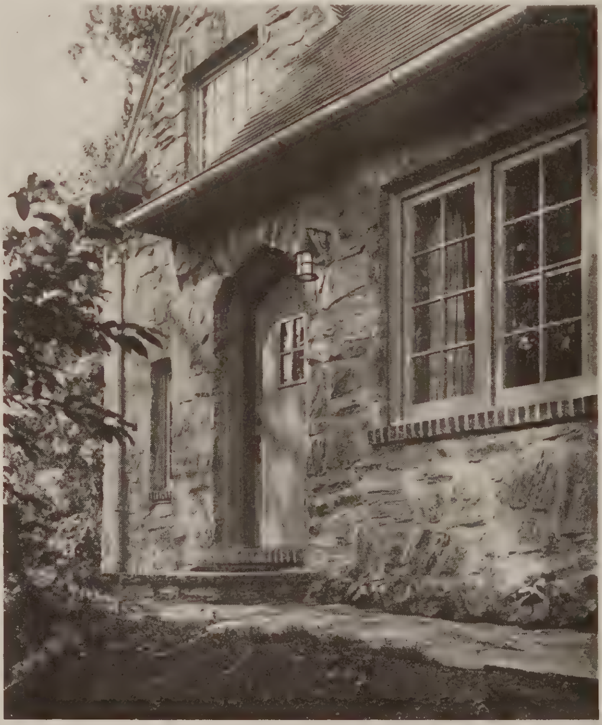
25,000 cu. ft. at approximately 55c per cu. ft. $13,750

(Costs Figured at Present Local Prices)

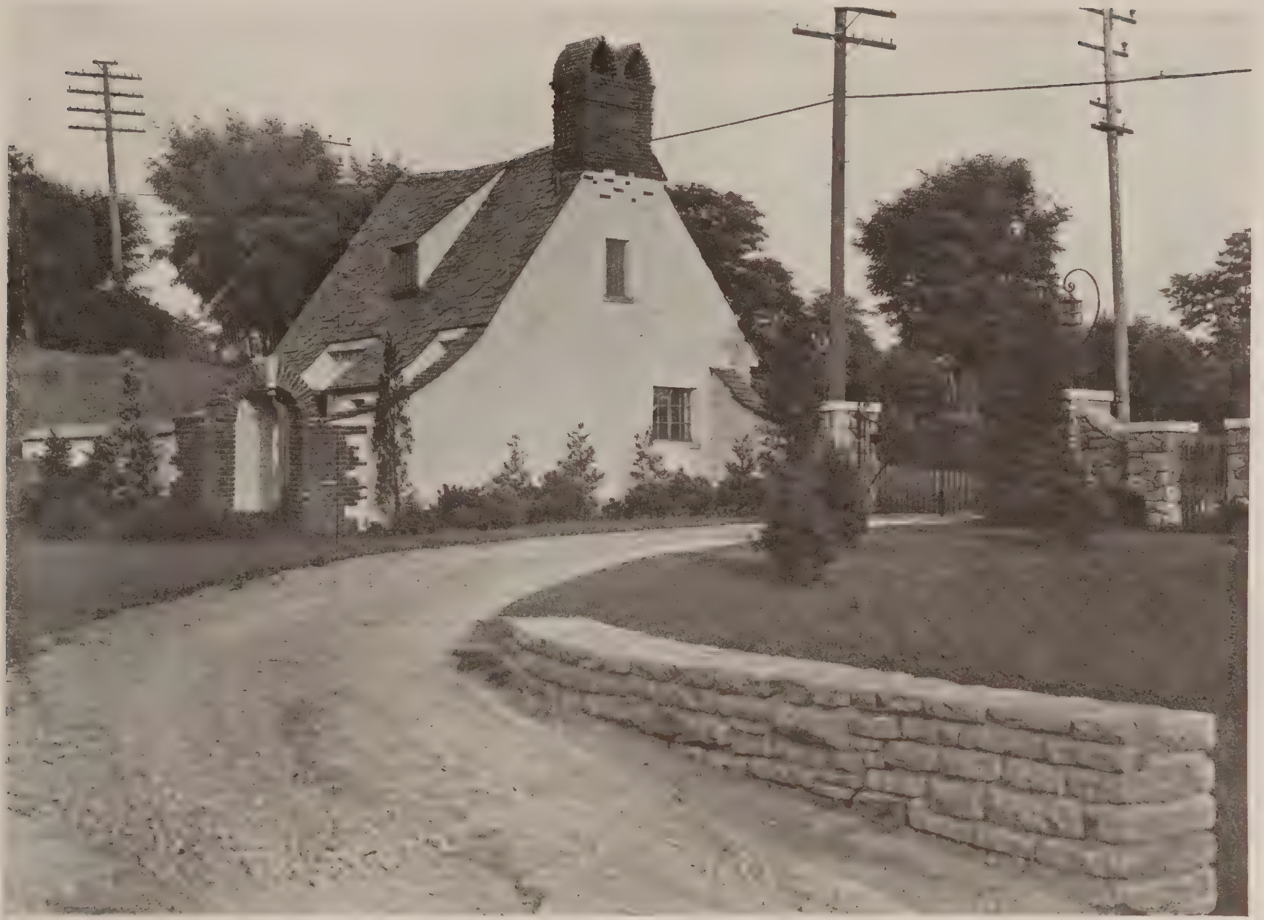
ANOTHER variation of simple adaptation of the English style in small house architecture is found in a stone house at Riverdale, N. Y. This compact little building, which is practically square in plan, is given unusual interest and picturesqueness, not only by the rough stone of which it is built, but also by the manner in which the high, steep pitched roof is broken by large and small dormers. Carrying the roof down over the entrance door and the dining room makes a pleasant break in the front elevation. The treatment of the garage with a living porch above is successfully carried out by using the same rugged stone construction employed in the house, and by the happy manner in which this garage and porch are attached to the house itself. The house possesses character thoroughly English.



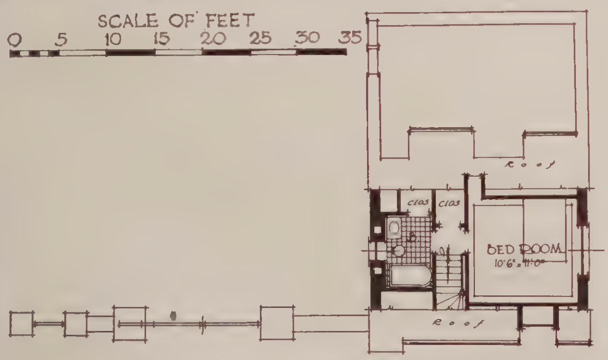
Detail of Entrance Porch



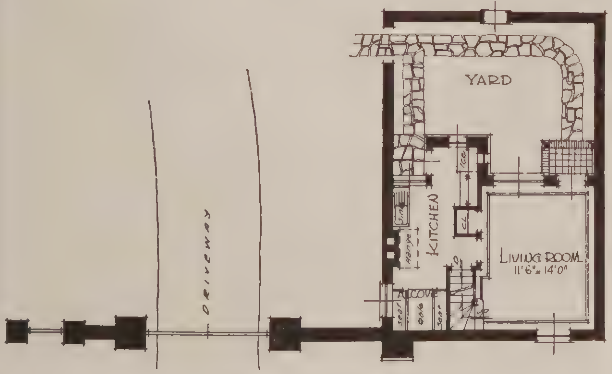
The Main Doorway



GATE LODGE AT CINCINNATI
R. C. HUNTER & BROTHER, ARCHITECTS



Second Floor Plan



First Floor Plan

BUILT into the side of a hill, this little Brittany cottage possesses many features of interest to the architect of small houses. The long, gracefully curving roof lines, which at the rear are continued to form the top of a service yard wall, are especially appealing. The rough, random method in which the slates of various colors are laid gives texture and quality to the roof's surfaces, broken only by one small dormer on each slope. The massive, double brick chimney at one end of the roof not only gives a welcome note of color but forms a needed feature at this point of the design. Brick is again used in the arched opening in the service yard wall. The flues divide above the second floor, permitting the introduction of a small upper window in the gable end of the cottage. The treatment of the whitewashed stucco, on which small patterns are occasionally wrought, is quite unusual; it has a crackled effect suggestive of age. To make the cottage and entrance gates a complete and unified whole, the stonework of the gate posts is repeated at the outer corner of the cottage, and carried up to form the wall of the cottage at this end. As this little building was intended as a gate lodge only, the plan shows a simple arrangement of living room, kitchen and dining alcove on the first floor, and a bedroom, bath, and several closets placed on the second floor.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 6

Gate Lodge Near Cincinnati; R. C. Hunter & Brother, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on double, reinforced concrete walls having interior air spaces.
Chimney, red clinker brick.
Copper gutters and leaders.

ROOF:
Heavy slate, laid random.

WINDOWS:
Metal casements.

FLOORS:
Oak, stained brown and waxed.

HEATING:
Steam, exposed radiators.
Water heated by small gas heater.

PLUMBING:
Brass pipes for hot water and copper boiler.
Fixtures, enameled iron.

(Perspective and Plans on Preceding Page)

EQUIPMENT:
Electricity and gas.

INTERIOR MILL WORK:
Chestnut, stained for trim and doors.

WALL FINISH:
Rough plaster throughout.

TREATMENT OF INTERIOR:
The few rooms of this small gate lodge are carried out in a manner thoroughly consistent with the quaint character of the exterior. Rough plaster walls and stained woodwork give a rugged effect, which is further emphasized by the heavy oak furniture in the English style.

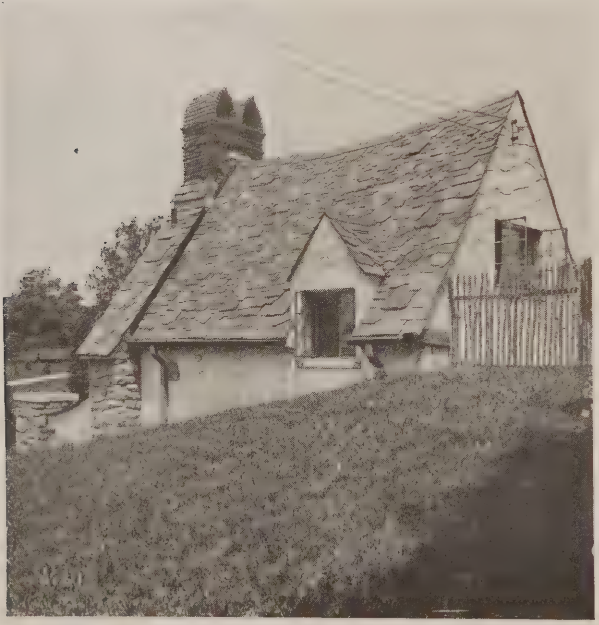
COST DATA

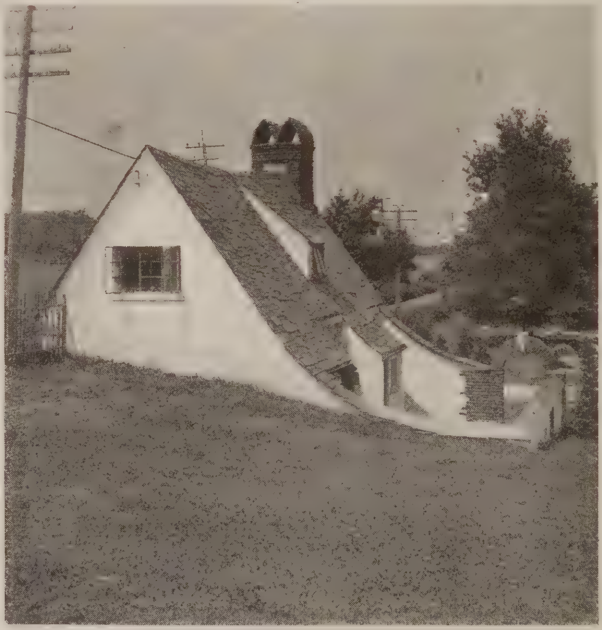
20,000 cu. ft. at approximately 55c per cu. ft. $11,000

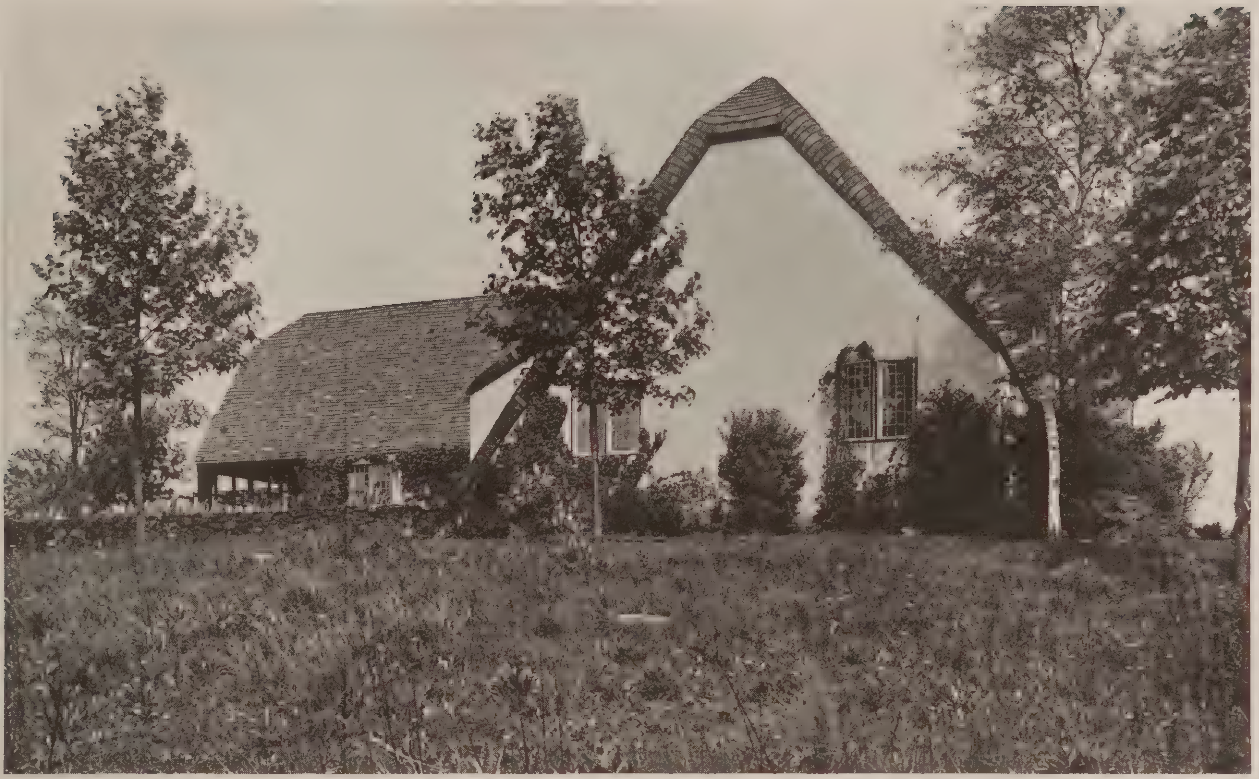
(Costs Figured at Present Local Prices)

THE plan of this building could easily be developed so as to include a larger living room and a dining room as well as the kitchen on the first floor, and two or three bedrooms on the second floor. The height of the roof and the proportions of the end elevations are such that this kitchen could be doubled in length and still keep its quality of charm and quaintness.

In character and finish the interiors of this cottage have been given the same careful study as the exterior. The walls are all finished in "antique" white plaster. The floors are made of wide chestnut boards. The trim and doors are also chestnut and, like the floors, are stained dark. The walls of the kitchen are painted white to correspond with the metal china closets and dressers. All of the interior hardware was specially made from old English models. In the basement of the building are located the steam heater, coal bin, etc.; it is reached by a short flight of stairs leading down from the kitchen, and under the stairs which run from the living room to the second floor. The house is small but complete.


View of Lodge from Hill

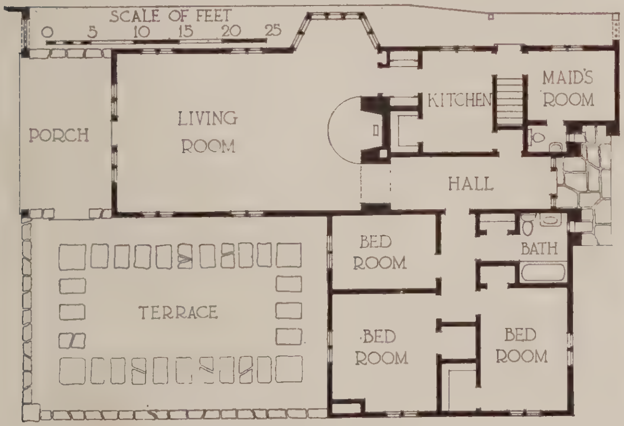

Detail of Roof and Chimney



SMALL ENGLISH COTTAGE AT PELHAM, N. Y.
BLOODGOOD TUTTLE, ARCHITECT

IT is seldom that an architect is allowed to carry out a design as picturesque and true to type as this little English house at Pelham. The fact that there is no second floor permits the long, unbroken sweep of the roofs, which, although covered with shingles, are intended to resemble the thatched roofs of Stratfordshire. Hand-wrought beams, stained dark, are used to relieve the expanse of plain stucco at the main entrance and the service entrance. The L-shaped plan shows three master bedrooms and bath on one side of the entrance hall. The kitchen and maid's room and bath are located on the opposite side of the entrance hall, while the large living room is properly placed at the rear of the house, which gives it desirable privacy and seclusion as well.

(Outline Specifications, Details and Cost on Next Page)



Floor Plan

Detail of Service Entrance

FORUM SPECIFICATION AND DATA SHEET — 7

Small English Cottage at Pelham, N. Y.; Bloodgood Tuttle, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
- Hard timber and stucco on hollow tile.
- Hand-hewn oak used for timberwork at front entrance and on side porch.
- Copper gutters and leaders.

ROOF:
- Cedar shingles, stained and laid to imitate thatch.

WINDOWS:
- Metal casements with leaded glass.

FLOORS:
- Straight and quartered oak.

HEATING:
- Hot water system; exposed radiators.
- Service hot water heated by means of small coal heater.

PLUMBING:
- Brass pipes for hot water and copper boiler.
- Fixtures, enameled iron.

(Perspective and Plans on Preceding Page)

EQUIPMENT:
- Electric lighting.
- Coal range in kitchen.

INTERIOR MILL WORK:
- Oak in living room, stained brown; elsewhere, white wood with enamel.

WALL FINISH:
- Bathroom floors and walls tiled.
- Rough plaster in living room and three-coat smooth plaster in bedrooms, bathroom and kitchen.
- Wallpaper on bedroom walls; enamel on bathroom and kitchen walls.

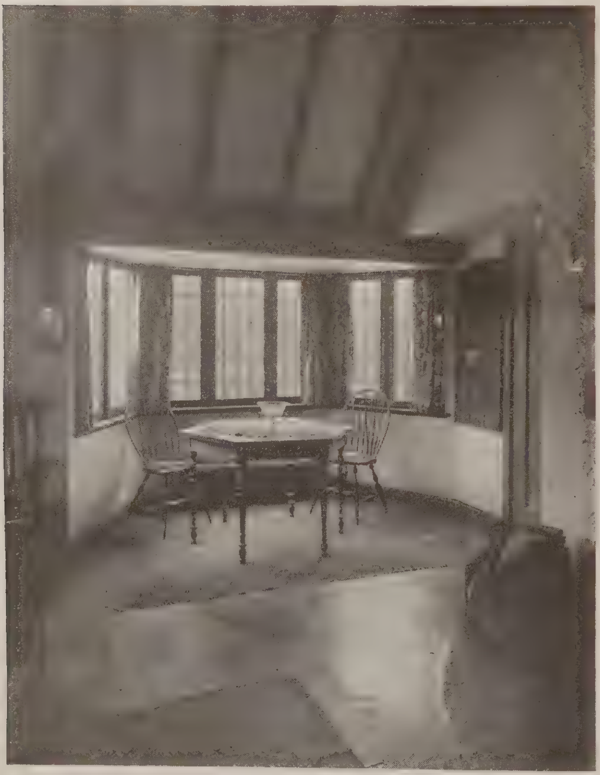
TREATMENT OF INTERIOR:
- The entrance hall and general living room have rough-textured plaster walls, with oak trim stained brown.
- The living room is open to the ridgepole, showing oak rafters, with plaster between.

COST DATA

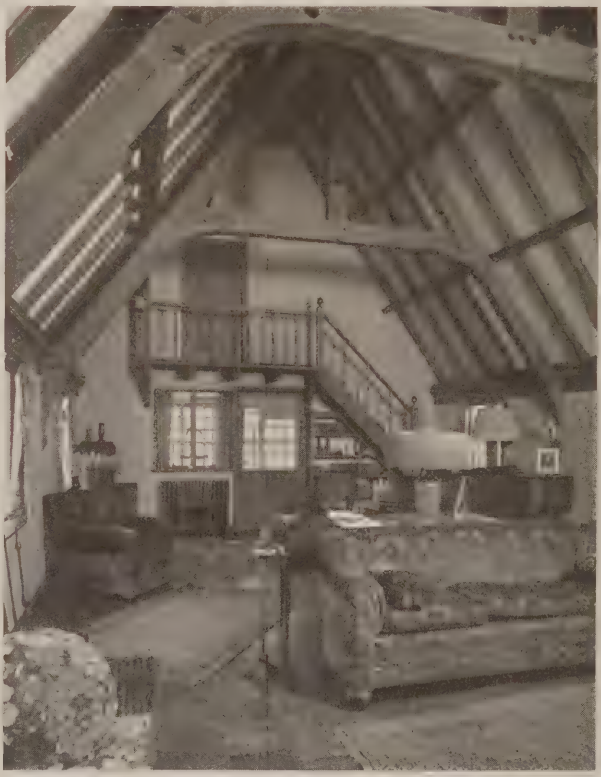
30,000 cu. ft. at approximately 50c per cu. ft. $15,000

(Costs Figured at Present Local Prices)

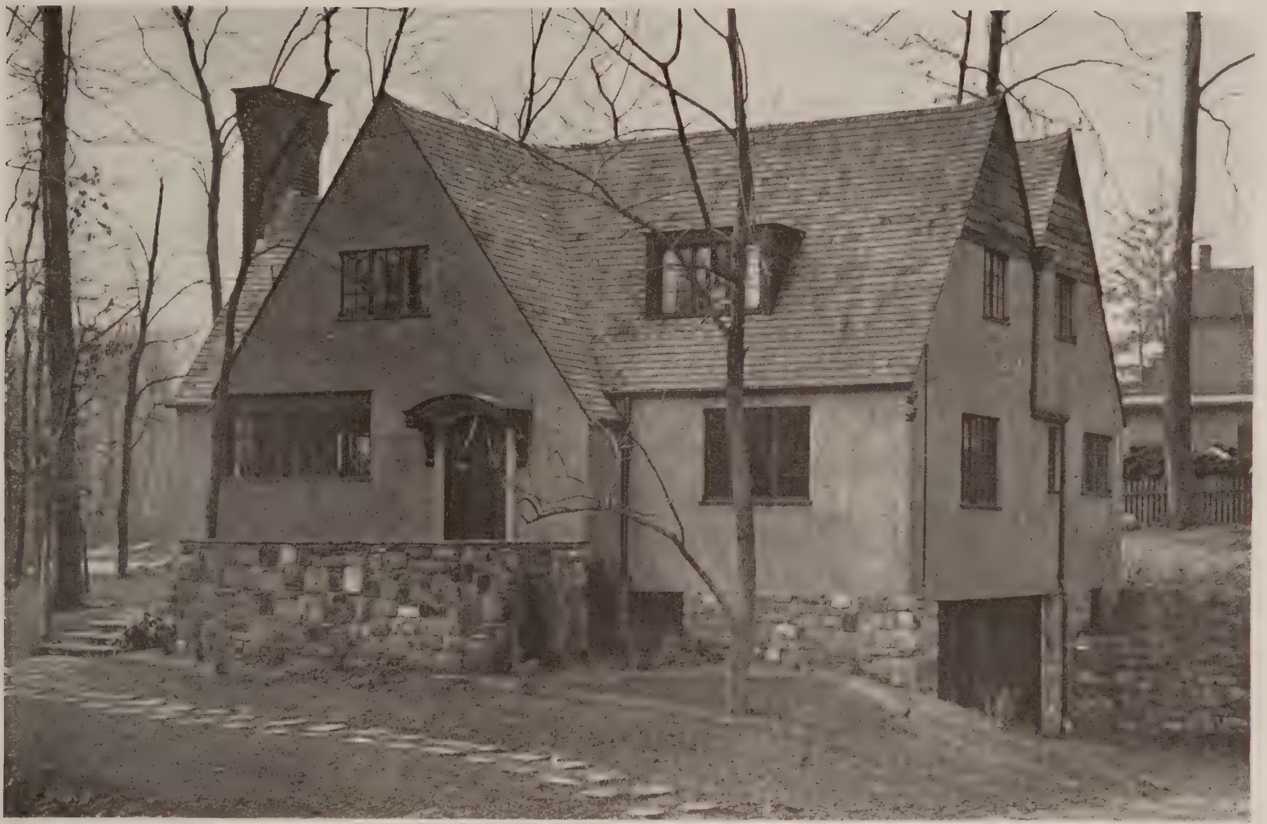
THE spacious effect of the living room is obtained by the height of the room, procured by leaving the ceiling open up to the roof's rafters and ridgepole. A deep bay window, adjacent to the passageway leading to the kitchen, makes an ideal dining alcove. The house throughout possesses character.



Dining Bay Off Living Room



General View of Living Room



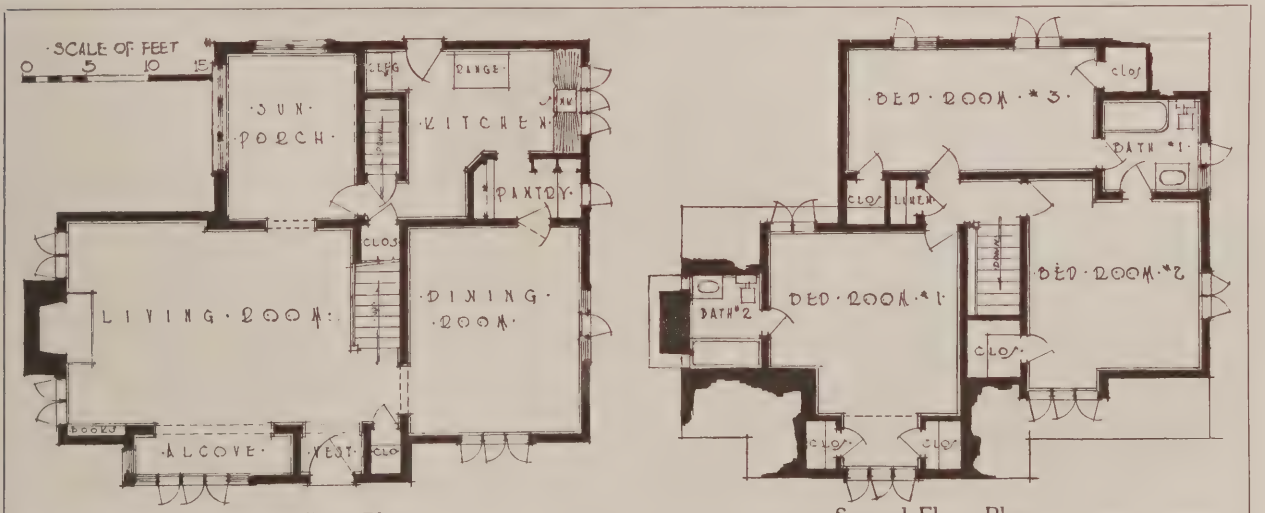
STUCCO COTTAGE AT BRONXVILLE, N. Y.

LEWIS BOWMAN, ARCHITECT

IN Bronxville there has been recently completed a stucco-covered house, small in size and simple in design, but possessing a degree of individuality seldom found in the cottage type. This is an excellent example of what good taste and artistic imagination can do to give charm and character to a small house. A large brick chimney dominates the gable at one end, while a garage is inconspicuously but conveniently located in the basement at the other end of the house, which is accessible by means of a sloping drive and enclosed service yard. The stonework of the foundation and entrance porch is carefully laid and interesting in character, adding much to the charm of the design. Concrete foundations are uninteresting in texture and character for any house, and particularly so for stucco houses where the walls seem to continue into the ground without any interrupting foundation. Whenever possible, concrete foundations should be avoided when stucco is used for the exterior walls.

The plan shows a pleasant living room with alcove and built-in bookcase. The second floor plan shows three bedrooms and two baths. In spite of the roof slopes, all of the bedrooms have sufficient vertical wall space for the proper location of the furniture.

(Outline Specifications, Details and Cost on Next Page)



First Floor Plan

Second Floor Plan

FORUM SPECIFICATION AND DATA SHEET — 8

Stucco Cottage at Bronxville, N. Y.; Lewis Bowman, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
- Stucco on patented lathing board over building paper and sheeting on wood frame.
- Copper gutters and leaders.

ROOF:
- Cedar shingles.

WINDOWS:
- Leaded casements.

FLOORS:
- White quartered oak boards in living room, elsewhere, straight oak, stained and waxed.

HEATING:
- Hot water boiler, controlled by thermostat.
- Enclosed radiators on first floor; elsewhere, exposed.
- Service hot water heated by small coal heater.

PLUMBING:
- Brass pipes for hot water and copper boiler.
- Fixtures, enameled iron.

(Perspective and Plans on Preceding Page)

EQUIPMENT:
- Electric lighting.
- Gas range in kitchen.

INTERIOR MILL WORK:
- Oak used for trim, doors stained brown, downstairs.
- White pine, painted, used for trim and doors upstairs.

WALL FINISH:
- Rough plaster downstairs.
- Three-coat, smooth plaster upstairs.
- Bathroom walls tiled, kitchen walls painted.

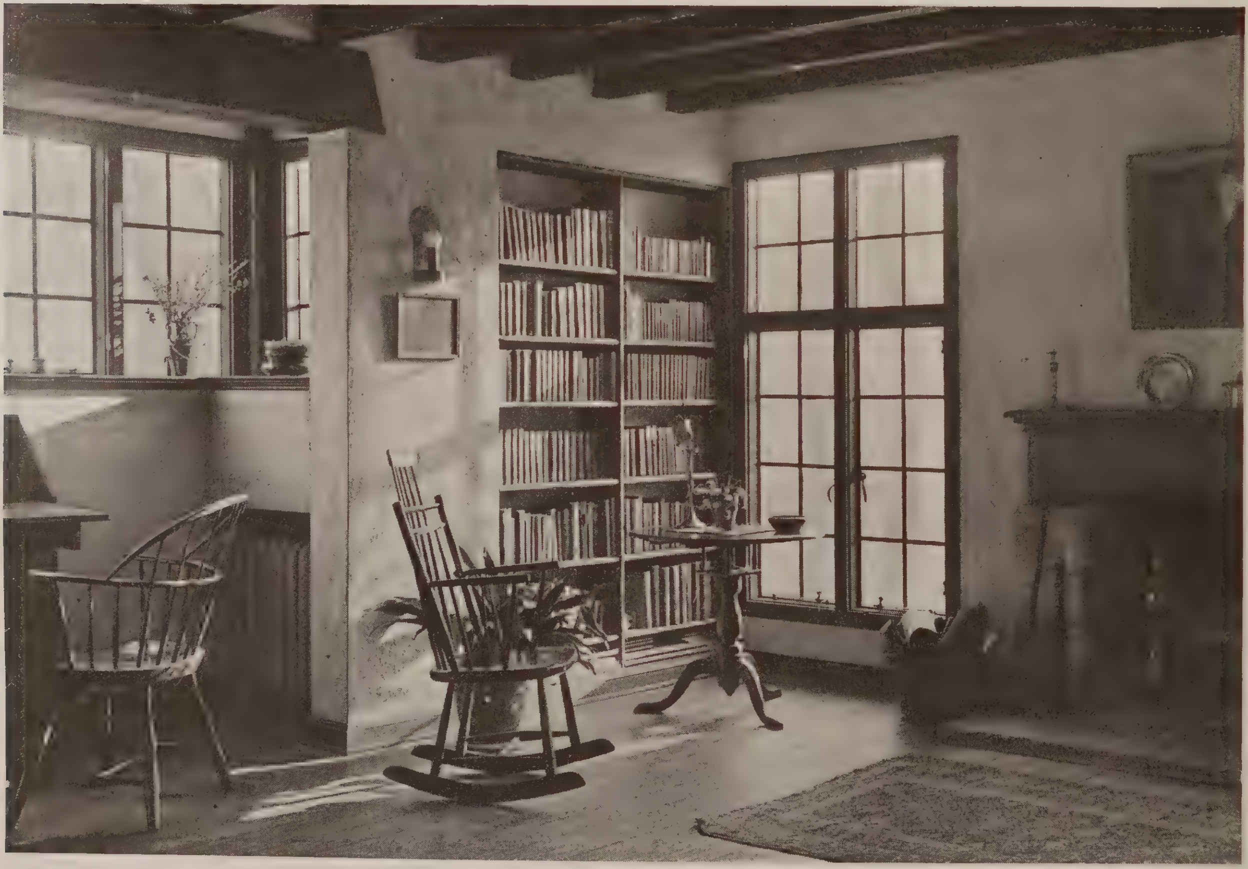
TREATMENT OF INTERIOR:

The simple English character of the exterior of this house is effectively repeated inside. The oak floor and joists of the second floor are left exposed, with rough plaster between. The stained oak flooring and trim on the first floor further carry out the English treatment.

COST DATA

25,000 cu. ft. at approximately 45c per cu. ft.	**$11,250**

(Costs Figured at Present Local Prices)



Living Room

INTERIOR ARCHITECTURE

Details of Small Louis XVI Salon, Compiegne

Drawn by C. HAMILTON PRESTON

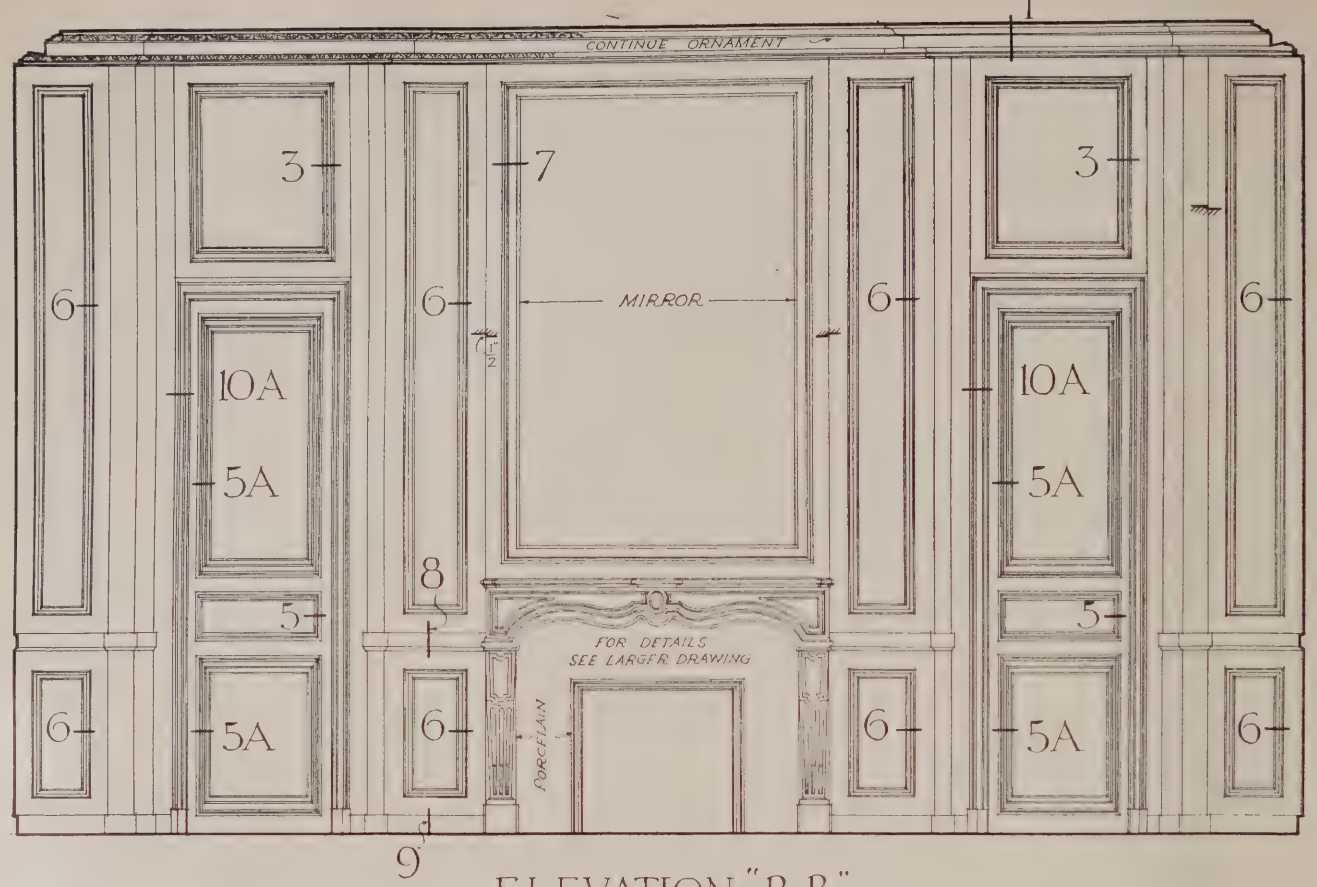
COMPIEGNE was always a favorite place of sojourn for the monarchs of France. Situated in a fertile valley with rolling hills round about, a superb forest close at hand which existed in the time of the Roman Invasion and was always famous for its hunting, this spot through its natural beauty held ever a fascination for the successive kings, vieing with Versailles and Fontainebleau as a royal residence.

Charles V erected there a feudal manor; Charles VII enlarged it; Francis I spent much time there; Louis XIII and Louis XIV favored it greatly. But our chief interest in Compiegne begins with the reign of Louis XV, when that monarch, so greatly enamored was he of the place and its environs, determined to erect there a palace which should be a fitting rival to the other royal residences. Gabriel, he who had created the two masterpieces in the Place de la Concorde and wrought so well at Versailles, was commissioned to do the work. The result was the present monumental and dignified palace.

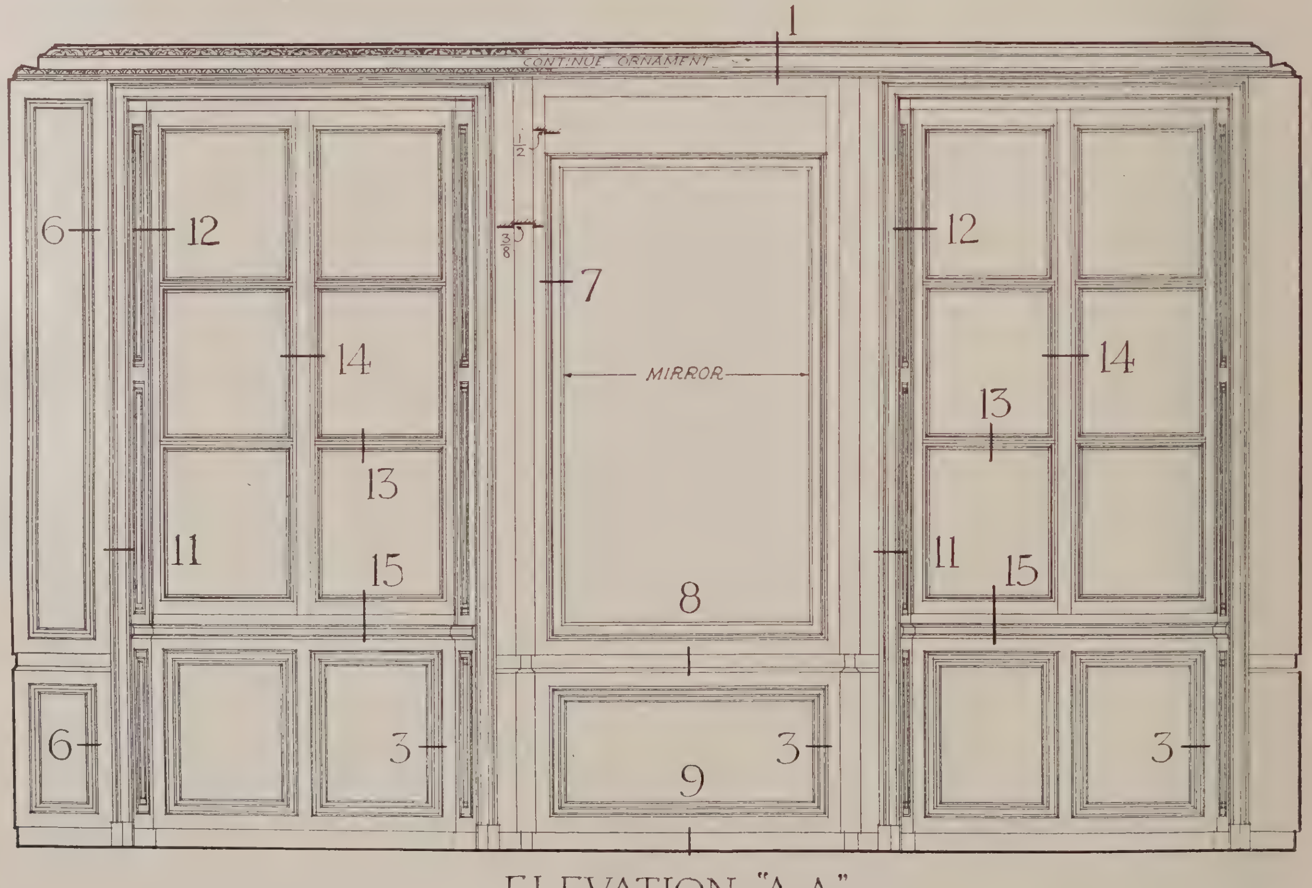
Little remains of the Louis XV interiors. Elaborate remodeling of interiors took place under Louis XVI for the apartments of Marie Antoinette. Napoleon in his time had an exceeding enthusiasm for Compiegne, and summoned the best architects and artists of the period to further modify and embellish the interiors of the palace, among them Percier and Fontaine and Girodet. Fortunately, the exterior has been but little changed. Under the Second Empire Compiegne received the same royal favor and became the favorite residence. It however escaped in great part the ravages of this thoroughly inartistic regime. During the late war Compiegne suffered not a little. In 1918 the palace was badly damaged by a bomb, which fell on the garden side, destroying a portion of the wall and some of the interiors. It was twice occupied by the Germans. In 1919, while the French officers were occupying the palace after the Armistice, fire broke out on December 19, destroying the Salon du Conseil and part of the room which is the subject of this sketch.

The mantelpiece is late Louis XV, of that period when all people were beginning to tire of flowing old lines, and the movement for a return to pure classicism was beginning to assert itself. Easy and graceful in its curves, it is yet simple and almost severe. The marble is dark gray with rose colored mottlings and veinings. All the mouldings in this room are strong and vigorous, in fact almost heavy and yet not forced in scale. The two mirrors on opposite sides, with their beautiful, simple gold frames, give great dignity and breadth to the room. The cornice is splendidly proportioned and decorated with varied and simple leaf motifs which are characteristic of the period, and seemingly peculiar to this portion of the Palace of Compiegne; flat in relief, rather deeply incised, and yet strong and vigorous and totally lacking in that sentimental fineness of parts which became so tiresome in later ornament of that period. The thickness of the walls enabled the architect by use of slightly splayed jambs with finely paneled shutters to give great beauty to the design of the windows. In plan the design is perfectly balanced; the two deeply recessed windows are opposite the fireplace, which is set in a deep alcove, with splayed sides which measure 45°. On each side of this alcove, doorways of equal size lead into other rooms of the palace. The alcove itself does not extend to the corners of this side of the room, but is set in, an equal distance on either side, permitting rectangular corners and narrow paneled wall spaces before the splayed walls of the alcove begin. The cornice, which is detailed with great delicacy and refinement, follows all of the angles of the interesting plan of this room. The vertical wall panels on either side of the fireplace and over the mirror are equal in width to the wall panels which occupy the rectangular corners before the start of the alcove. This perfect example of balanced design can best be appreciated by careful study of elevation "B B" on page 58. The stile above the lower panels in all the doors lines with the lower member of the wainscot cap, thus giving an uninterrupted horizontal line around all four walls, broken only by the recessed windows and the projecting mantelpiece. The mirror over the fireplace is balanced by another, slightly narrower in width, between the two windows on the opposite wall. Why this mirror is not carried up to line with the top stile of the wall panels is not obvious, unless this variation was due to the fact that the two mirrors were made of equal height, although the mantelpiece necessitated a higher level for one mirror. It is conceivable that through some error on the part of the builders these mirrors were ordered of equal height, and were installed as delivered, rather than to undergo the delay of ordering a new mirror for the wall panel between the windows. This seems to be a plausible explanation.

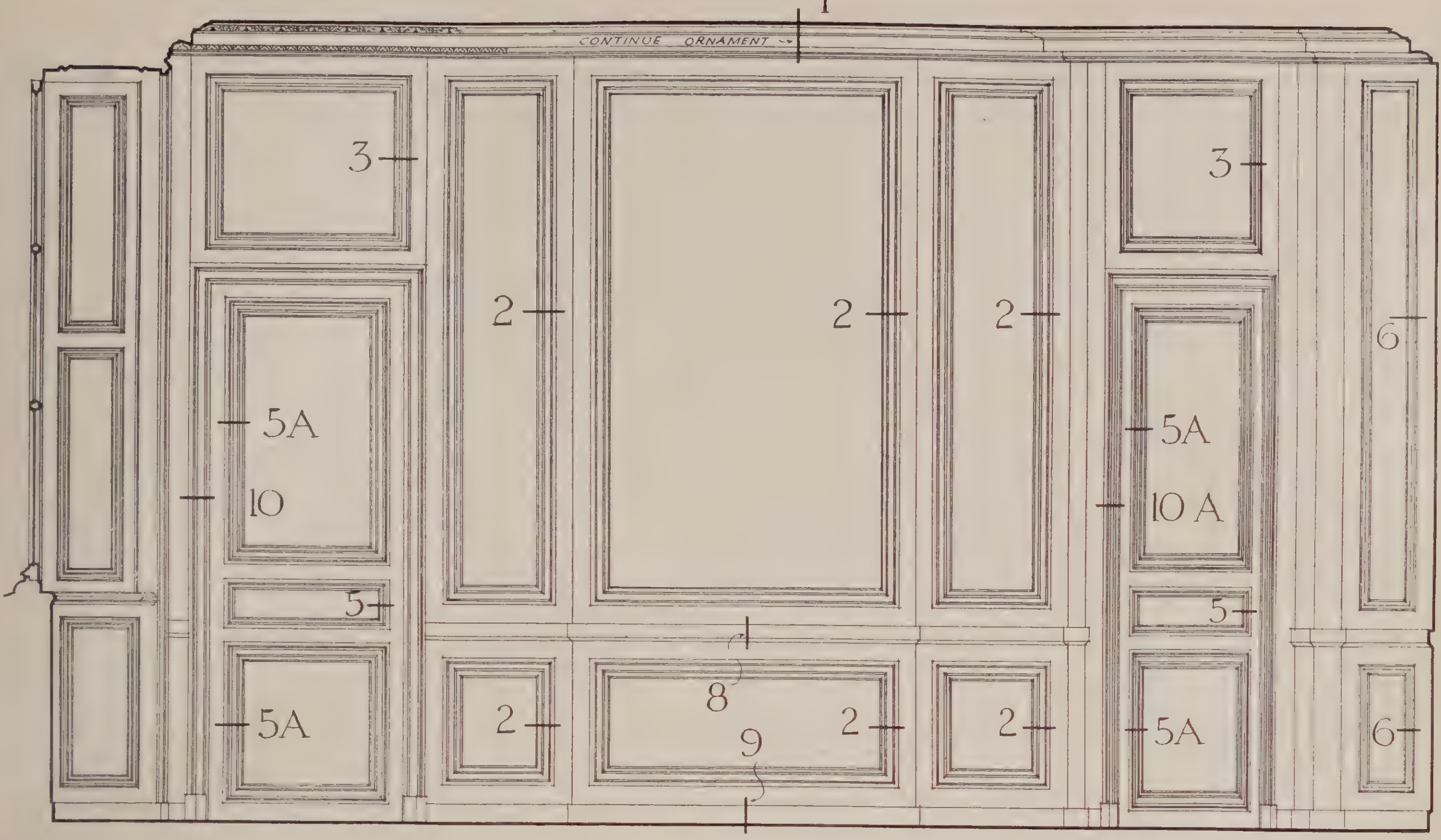
The woodwork of this room is painted a cool gray.



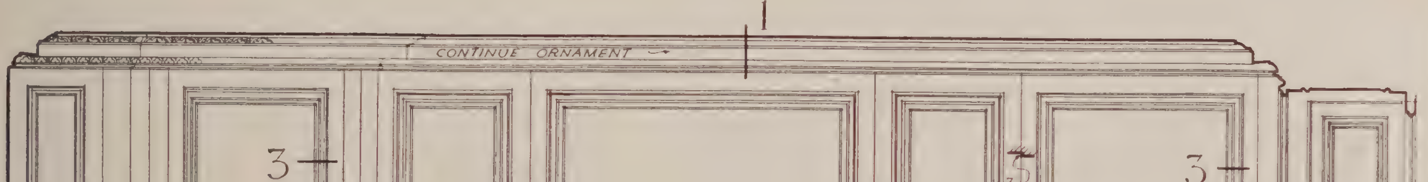
ELEVATION "B B"



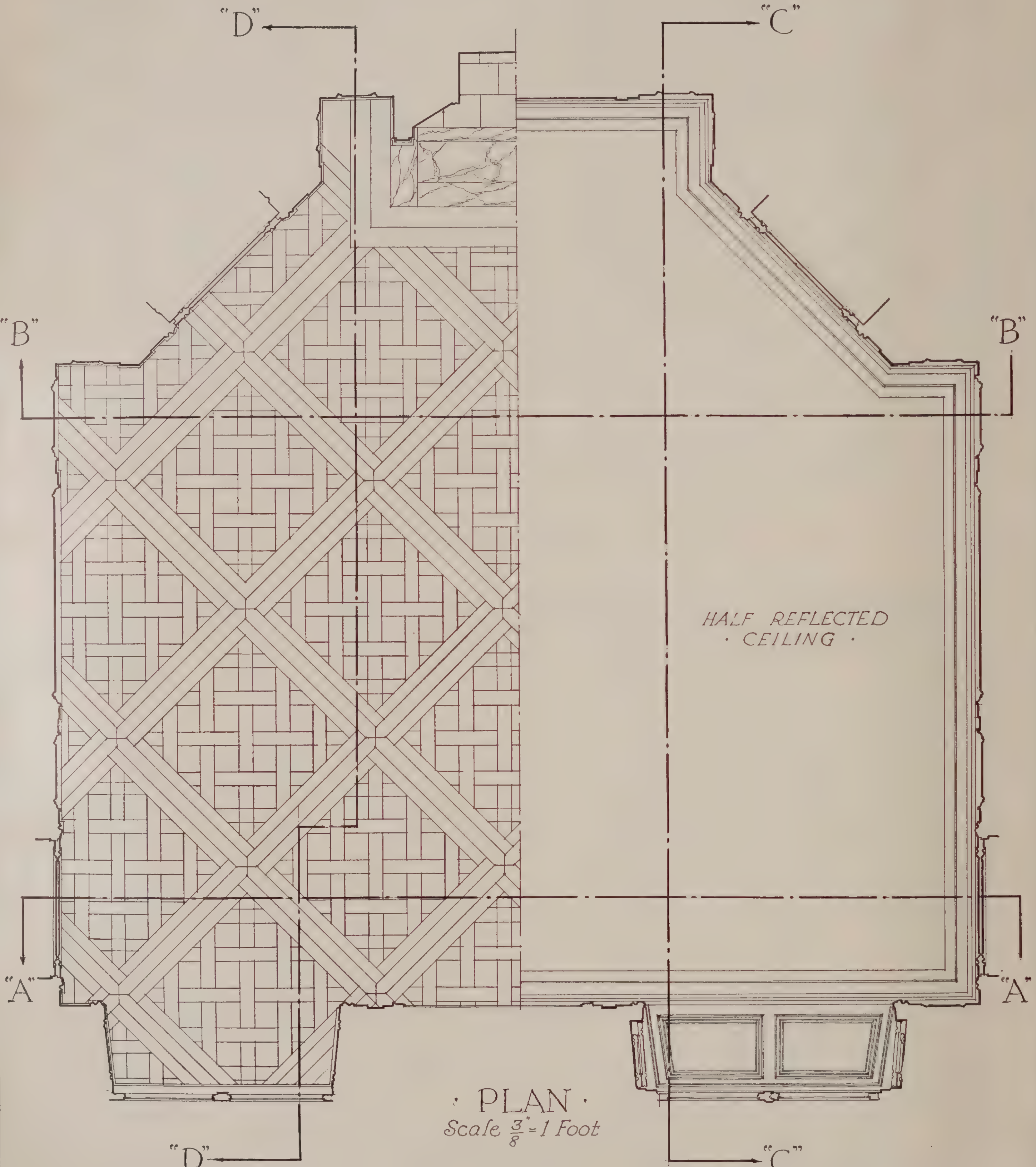
ELEVATION "A A"
PETIT SALON
CHATEAU DE COMPIEGNE



ELEVATION "D D"
Scale $\frac{3}{8}$"= 1 Ft

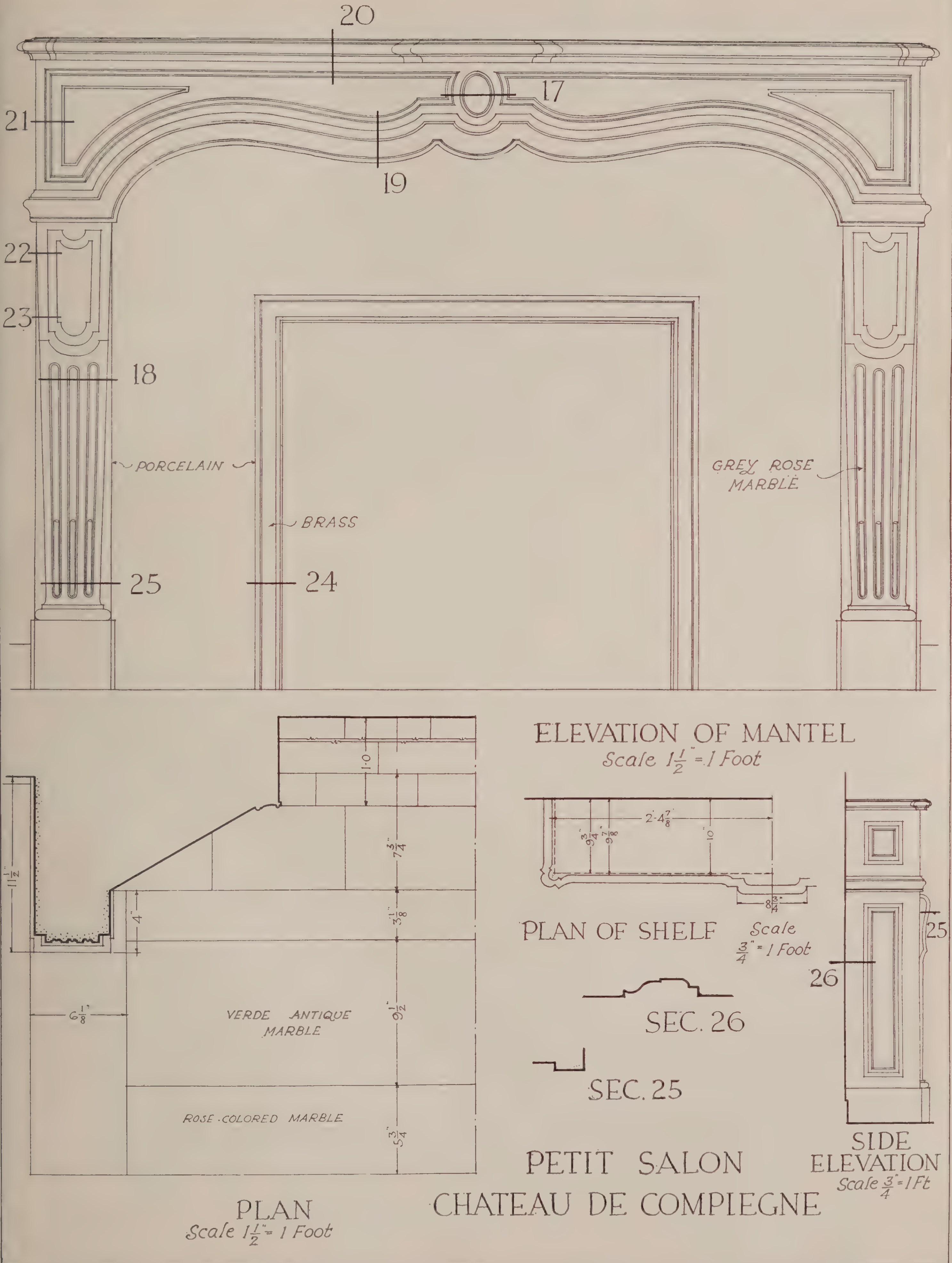


ELEVATION "C C"
PETIT SALON
CHATEAU DE COMPIEGNE



· PLAN ·
Scale $\frac{3''}{8}$ = 1 Foot

PETIT SALON
CHATEAU DE COMPIEGNE



ELEVATION OF MANTEL
Scale 1½" = 1 Foot

PLAN OF SHELF Scale ¾" = 1 Foot

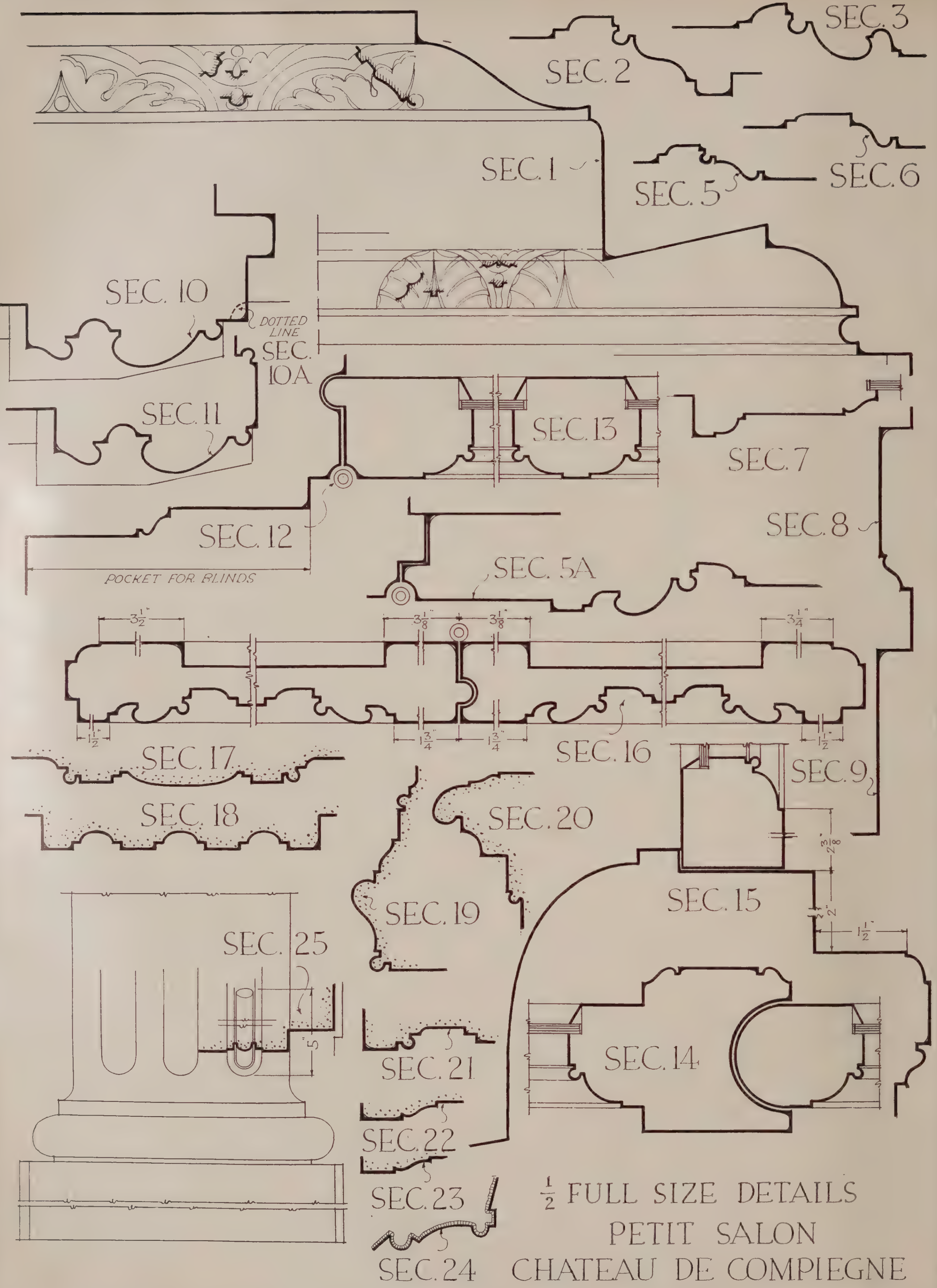
SEC. 26

SEC. 25

SIDE ELEVATION
Scale ¾" = 1 Ft

PLAN
Scale 1½" = 1 Foot

PETIT SALON
CHATEAU DE COMPIEGNE

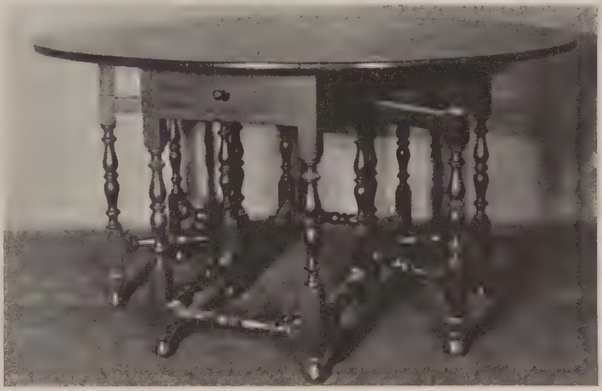


½ FULL SIZE DETAILS
PETIT SALON
CHATEAU DE COMPIEGNE

DECORATION & FURNITURE

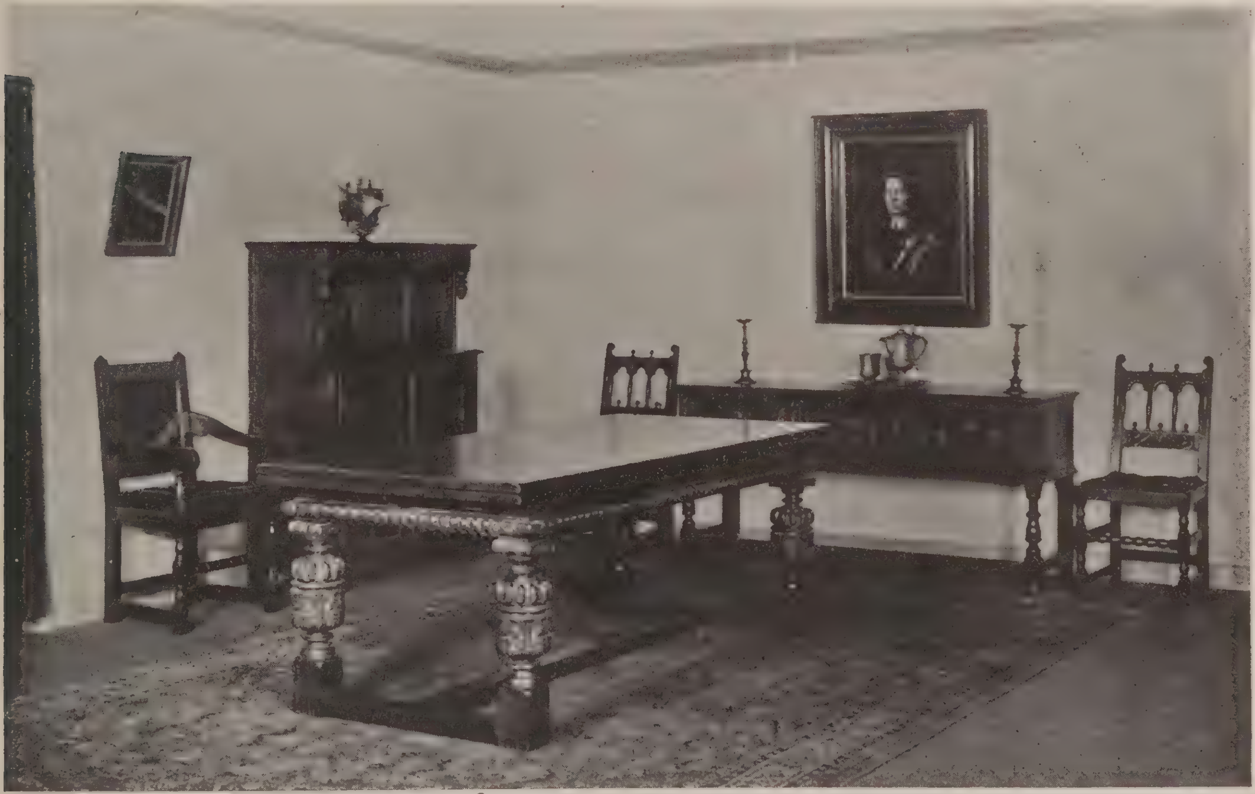
Some English Types of Tables

STUDENTS of furniture find that with the development of the chair and the table there may be studied the history and the growth of furniture making in the different countries of Europe. In one sense, in fact, the study might be said to be of but one piece of furniture. A chair is but one of the developments of the bench, and for centuries benches and tables were practically alike excepting for the difference in size, a table being practically a bench, generally made to cover a greater area and always made of greater height to render its use convenient for its purpose.


Courtesy "Belmaison"
Reproduction in Oak of English Gateleg Table

In no country of Europe has there ever been designed or made furniture more in accord with its architectural setting than that developed in England. Then too, there has been no period in England (if we except that time during which Vanbrugh, Chambers and certain others were filling their vast palaces with furniture copied from that used in France) when there has been a clearly defined line drawn between furniture used in the cottage, farmhouse or manor house, and that used in the homes of the great. The forms were much the same in both.

Much is being said and written just now about "refectory tables," the term being so loosely used that it is made to apply to a great variety of types. Strictly speaking, a refectory table is of the kind


Courtesy Kensington Mfg. Co.
A Fine Reproduction in Oak of an Old English "Draw" Banquet Table

Excellent Reproduction of a Jacobean Table, Suitable for Dining Room or Library

used in the refectories of convents or monasteries, where the inmates sit about three of the sides of a room, with their backs against the wall. This arrangement in the form of a hollow square is convenient for those who may be serving, and such tables may be and are quite narrow,—rarely more than 2½ or 3 feet wide. Such tables came into wide domestic use in England as one result of the suppression of the convents and monasteries during the sixteenth century, and many are still in use in old farmhouses and small manors, while many have been brought to America, some of the best to be used as models from which others are reproduced. English refectory tables, indeed refectory tables of any country, are likely to embody the austerity and simplicity of religious houses, but at the same time they are likely to possess beauty of line and have often assumed with the use of centuries a rich, deep and lustrous patina on their sturdy and heavy English oak.

A favorite table, characteristically English, is that which came into wide vogue during the latter part of the reign of Henry VIII and that of Elizabeth, having heavy and more or less bulbous legs, sometimes adorned with carving, generally bold and full of English character, on the aprons, stretchers, where they occur, being plain.

But no form of the table is at once so graceful and so full of English character as what is known as the "gateleg." It belongs to what students of furniture know as the "oak period," but may be correctly developed in walnut as well. Coming in forms from the most primitive to the most sophisticated, nothing in the way of furniture adds a more unmistakably English atmosphere than the gateleg table, and owing to the interest which has been shown, nothing is more easily had in excellent reproductions possessing the character of the old.

Courtesy Kensington Mfg. Co.

English Oak Furniture with Parged Ceiling and Linen Fold Paneled Walls

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THE ARCHITECTURAL FORUM

FEBRUARY
1925

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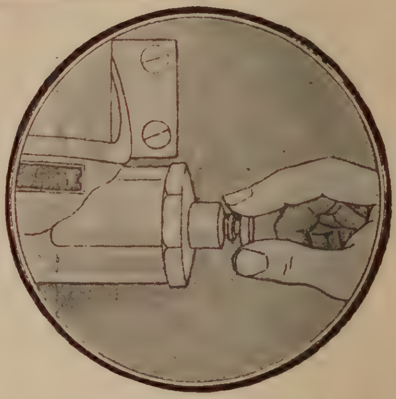

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ARCHITECTURAL ACHIEVEMENTS—NUMBER TWO

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Shelton Holding Co., Contractors
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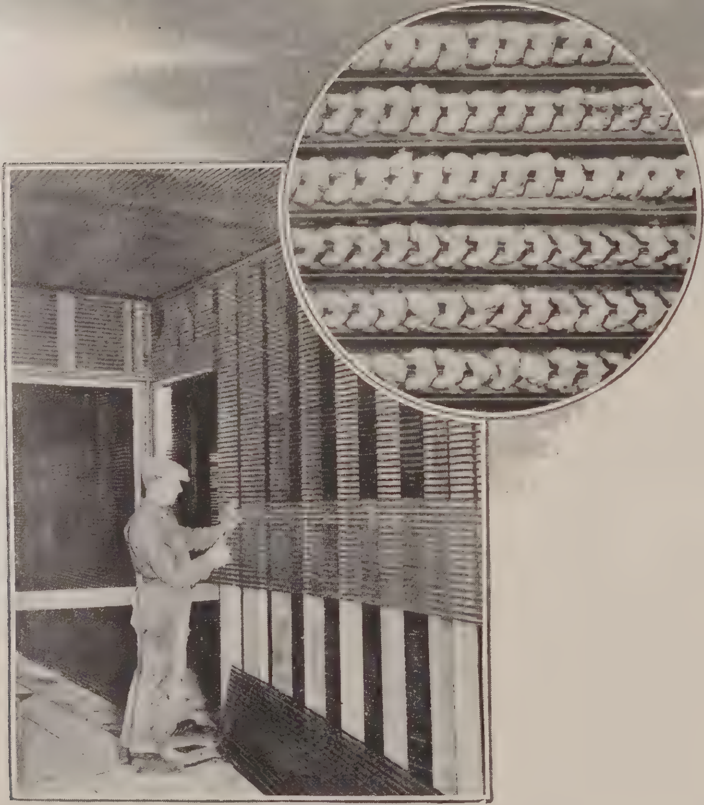

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BOOK DEPARTMENT

A Valuable Study of the Small Library

A Review by JOHN ADAMS LOWE

Assistant Librarian, Brooklyn Public Library

THIS volume is a concise presentation of the best current practice and experience of librarians regarding library buildings, by an authority on the subject and intended for library trustees, building committees and architects. It is a record of experience rather than an historical treatise. The author was for three years secretary and organizer of the Indiana Public Library Commission, for 13 years librarian of the Denver Public Library, and is now librarian of the Cincinnati Public Library. He has served the American Library Association as its secretary as well as its president. He possesses unusual ability in planning buildings which are economical to administer and pleasing in architectural design, as is manifest in the branch library buildings in Denver. The particular value of this book to architects lies in the fact that the author emphasizes from a librarian's standpoint many features in the details of library planning which differ materially from building details in other types of structures.

The Children's Library, Pasadena
Marston, Van Pelt & Maybury, Architects
Illustrated, with Floor Plans, in "Library Buildings"

The material is presented in two main divisions; the first third of the volume deals with "General Suggestions," and the remainder with "Plans." Only buildings costing less than $50,000 are considered, for the reason that "buildings costing less than this sum will greatly outnumber the more expensive ones, and they will be erected in smaller cities which usually lack architects with experience in planning library buildings." "General Suggestions" are concerned with principles of planning, construction and equipment, including location and type of building, architect, cost, capacity, windows and lighting, walls, heating and plumbing, shelving, furniture and general equipment. Of particular interest to those who are planning library buildings are the "observations and suggested floor plans" of the secretary of the Carnegie Corporation, who had unusual opportunity to study such problems. In presenting the matter of furniture the author has, with definiteness and correctness, made a selection for a library building costing about $25,000, and has indicated its reasonable arrangement on the floor plan. The plans selected are of library buildings in different sections of the country. Although the type varies somewhat, there is little difference in the fundamental principles involved for successful library work. The basis for selection has not been entirely architectural, although a few of the buildings shown have claims to this distinction. Most of them represent careful planning for economical and successful library work, while a few plans have been included which show features in arrangement that are unusual and which sometimes have been the basis for much discussion among library workers and trustees. The work represents careful study.

Many of the best, most recently erected, structures mentioned are branch buildings of city library systems. It is of importance to include these, for work in a branch library differs little from that done in a small city or village library, and the branch library buildings shown would serve excellently in smaller cities or with certain modifications even in larger towns.

Of the 25 buildings shown, 16 are branch libraries, six village libraries, one a college library, one a technical high school library, and one an architect's design for a rural library. Fourteen are of brick, two of brick and cement, four of wood, and one each of stucco, stone, terra cotta and tile. The illustrations include exterior and interior views reproduced from photographs, first floor plans, and numerous basement plans. Each plan is accompanied by a page or more of description covering the architecture, date of erection, size, material, cost, special features and comment on the strength or weakness of various features of the plan which could not fail to be helpful.

Librarians are beginning to understand that every library should be housed in a structure adapted to the kind of work it must do. There has been growing, during recent years, a feeling that whatever architectural style may be chosen for the building, an attempt should be made to relieve its interior from the monotonous and commonplace appearance prevalent in the conventional building. The classic Greek type, for example, is considered not well adapted to the small library. A less institutional and a more flexible, hospitable type of building is better suited to its needs. Accordingly, Mr. Hadley in making his selection has included examples among which the Colonial, English cottage, Spanish and Italian types seem to predominate.

Spanish Details

A Highly Practical Work on the Spanish Renaissance

By William Lawrence Bottomley

IN this volume there is presented a collection of illustrations and measured drawings of carefully selected details of Spanish Renaissance architecture. The work of a New York architect who has been notably successful in attractive use of Spanish motifs in his own practice, the volume presents not so much work of a striking and magnificent character as what is comparatively moderate in scale and therefore adaptable for present-day use in America.

The volume is replete with illustrations of well chosen, simple Spanish facades, doorways, windows, balconies, balustrades, exterior stairways and the grilles of wrought iron or carved and turned wood which are used at gates, windows and doorways. Interior details include the arcades of patios, ceilings, chimneypieces, floors, doors, shutters, wall fountains, etc., and since in most instances the illustrations are accompanied by measured drawings the reproduction of these details is not difficult.

Of all the recent works on the Spanish Renaissance this is perhaps the most practical for actual use.

Frontispiece in color; 104 plates and measured drawings, 11 x 13¾ ins. In portfolio form, $12.50; if bound, $15.

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Library building committees in small towns may find a lack of plans small enough to meet their needs, and in fact this is a real need. How can one secure architectural beauty and practical efficiency in a building costing less than $10,000? It can be done and is done by skillful architects, although the problem may prove exacting. Such a book as this must send committees to architects to assist them with their problems, however small, rather than to trust to that highly unsatisfactory method of trying to save funds by having plans drawn by a local carpenter or contractor, and attempting to ease the conscience by the excuse that no architect would be interested in a problem so small.

The opinion has been expressed that because of the change of policy of the Carnegie Corporation in making grants for library buildings activity along this line would appreciably stop. Such is not the case. Everywhere, all over the country, if the advice from library commissions in the different states is correct, there is great building interest. The Carnegie Corporation has made invaluable contribution to library architecture, and not the least important part of the contribution has been the determination of certain principles. In this book is included the progressive series of 12 floor plans taken from the Carnegie Corporation's "Notes." These will prove constructive to beginners, and will serve as a helpful review for experts, being the result of years of experience.

This volume is the most compact, useable book on small library buildings available, and it should be in the hands of architects among whose clients may possibly be a library building committee. It should be useful not only for those who are going to build, but also for those who have built, because of its many practical suggestions for the planning, the management and operation of library buildings, all matters of the first importance.

LIBRARY BUILDINGS. By Chalmers Hadley, 154 pp., 7 x 10 inches. Price $3.50. American Library Association, Chicago.

FUNDAMENTALS OF HOUSE WIRING. By George A. Willoughby. 67 pp., 5 x 7¾ ins. Price $1. The Manual Arts Press, Peoria, Ill.

UNLIKE carpentry and even certain forms of actual building, the wiring of a structure for electric lighting is not work likely to be often attempted by an amateur. The demands of public safety have made necessary the surrounding of whatever has to do with electric lighting with guards in the form of municipal control or some form of licensing, and the technicalities of the subject must be well mastered and proficiency proved before it is possible to attempt actual practice in this field.

Mr. Willoughby is the Supervisor of Electrical Work in the Arthur Hill Trade School, Saginaw, Michigan, and the author of the work "Practical Electricity for Beginners." This new volume is not a work intended to show the versatile home owner how to wire a house but a text book for electrical construction classes in schools of various kinds; it covers exactly the field indicated by its title. The value of the ability to make house wiring installations, to understand what is back of a good electrical installation, to select good materials and to appreciate the duties of an electrical worker have been fully recognized by the author. The text covers fully the wiring of old buildings as well as new.

PAPERS AND MONOGRAPHS OF THE AMERICAN ACADEMY IN ROME. Works printed in Italy. To be had at the prices noted from the office of the American Academy in Rome, 101 Park Avenue, New York. Volume I.—The Cults of Campania. By Roy Merle Peterson. 403 pp., 6 x 9 ins. Price $2.50. Volume II.—Local Cults in Etruria. By Lily Ross Taylor. 258 pp., 6 x 9 ins. Price $2.50. Volume III.—Roman Buildings of the Republic. An Attempt to Date Them from Their Materials. By Tenney Frank. 149 pp. Price $4.

THE work of the American Academy in Rome includes activities other than that of affording to American students the means of profiting by the advantages of learning which Italy affords. Founded as the Academy was upon a foundation sufficiently broad to make possible work of considerable scope, it can easily be seen that circumstances occasionally make possible work of a nature somewhat different from that with which it is usually thought to be concerned, and thus there may be made ventures in research which aid in interpreting to the modern world the ruins of antiquity which still exist in Rome. In this way—among others—an effort is made to repay in some small part, or at least to acknowledge, the indebtedness of America to the Eternal City for all the facilities for learning which she holds forth to students of the entire world.

One volume of this series of monographs deals with the religion of a part of Italy not far from Rome, thus supplementing other works which for the most part deal with the religious cults of the city itself. Study of the religion of Rome has developed wide difference in ideas, each locality having in a sense a religion of its own, but all including a deification of attributes, seasons, days of the week, rivers, hills and glades; much deification also of emperors and ancient worthies when respect for them had turned into worship. Many divinities were taken over bodily from Greek, Semitic, or other sources, and the veneration of all this vast Pantheon of deities, careful propitiation of gods and observation of omens constituted a large part of the religion of ancient Rome.

Religion, even as it was held and observed in pagan Rome, involved the use of temples, and in the building of temples the aid of architecture was logically invoked, so the imagination may readily picture the effect on architecture of the beliefs and forms of worship which they entailed. Volume II of the series deals with much the same subject as applied to Etruria.

The ancient Romans, as the author of Volume III observes, were likely to express themselves in deeds and structures rather than in phrases, and they left for later generations the task of ferreting out their cultural history from whatever fragments of institutions or remains of buildings might be left of their mighty achievements. In actual construction and engineering the spirit of Rome revealed itself. Study of the buildings of ancient Rome from an examination of their materials and methods used in construction forms the subject matter of this volume.

All of the research entailed in the securing of the data presented in these volumes has involved infinite and patient effort on the part of scholars and students, and its presentation in permanent, easily accessible form constitutes an achievement well worthy of the Academy and its traditions. Publication of volumes on scholarly subjects may well form an important part of the work of an institution such as the American Academy in Rome.

Promoting and Financing Coöperative Apartment Buildings

A Statement of the Forms and Methods Approved by the Coöperative Apartment Section, National Association of Real Estate Boards, with Complete Sample Documents

❡ Erection of coöperative apartment buildings, already proceeding upon a considerable scale in different parts of the country, would be far more general had there been during the past few years any recognized source of general information upon the subject. Each time THE FORUM'S pages have contained an article upon some particular phase of the matter, letters of inquiry have been received at THE FORUM'S offices which amply proved the need of a volume which would sum up and present a review of the theory and practice of the coöperative apartment house movement, the practical value of which has now been widely demonstrated.

❡ Such a work has now appeared, prepared in the light of considerable successful experience and covering every phase of the organization and administration of a coöperative apartment house project; the forming of the owning corporation; the sale of tenant owners' stock; arrangement of owners' leases; erection of the building, and the conducting of the affairs of the association when once the building has been constructed and is in operation.

❡ To render the work of as practical a value as possible, inclusion is made of all the legal forms likely to be required, such as stock certificates, leases for stockholders and subleases, and the blanks used in the office of the association's secretary or bookkeeper. A number of pages are given up to describing various forms of publicity which have been found useful in attracting members to coöperative apartment house groups, and the volume contains the information which, regarded from every point of view, has been required. It should supply a powerful stimulus to the coöperative movement by promoting a correct understanding of its fundamental principles.

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POLYCHROMY; ARCHITECTURAL AND STRUCTURAL THEORY AND PRACTICE. By Leon V. Solon, with Introduction by Ralph Adams Cram. 157 pp., 7 x 10 ins. Profusely illustrated, including nine plates in full color. Price $6. The *Architectural Record*, New York.

IN his foreword to this valuable and interesting work, Mr. Cram points out that loss of color in architecture was part of the price paid when the world rejected the principles and practice which directed the freedom and spiritual energy of building during the middle ages and embraced adherence to the definite law and intellectual determination which underlay the building of the Renaissance. In every age since the history of architecture began to be recorded and in every land under the sun color formed a vital part of architecture. If the ruins of ancient Greece appear cold and forbiddingly formal today, it is largely because centuries of neglect have dimmed their brilliance and reduced their walls to the monotones of white or gray of the original stone; but archæological research has corrected the fallacy which teaches that ancient Greek buildings depended for their splendor upon form alone, and a survey of the architecture of every country, Egypt, Assyria, Venice and Spain, to say nothing of China, India and Japan, today as in the past, proves that a close partnership between form and color must always exist where architecture is to be best served. This lesson is not entirely ignored by the modern world, and some years ago there began efforts, tentative but none the less significant, toward use of color with the exteriors of buildings, which now appear destined to bear fruit in excellent use of color.

In this volume, Leon V. Solon, who was Art Director of Liverpool University before taking over direction of the polychrome work of the American Encaustic Tiling Company, Ltd., of New York, presents in book form the matter which was originally published in the *Architectural Record.* Based, as it is, almost completely on a study of color in the architecture, and to some extent in the sculpture, of Greece, it forms a text book for architects, draftsmen, sculptors and students interested in the effort to revive use of color in building. The work is carefully written and extremely well illustrated and documented, and its teachings are as practical and as applicable to conditions today as the principles upon which the teachings are based were centuries ago.

SCHOOL BONDS. By John Guy Fowlkes. 176 pp., 5 x 7¾ ins. Price $2.25. The Bruce Publishing Co., Milwaukee.

THE service which an architect renders to his client is often inclusive of far more than the drawing of designs and plans, preparing of specifications and superintending of construction. Many architects concern themselves with problems which might seem to be primarily economic, and in their solution much often depends upon the solving of financial problems.

There are possible instances where an architect might render valuable service to a school board by suggesting methods of raising funds for school building, and this volume supplies much valuable information regarding bonds, their issuing and sale. The work has been prepared by a professor in the University of Wisconsin, and is the result of considerable experience as well as research in this field. The book affords helpful suggestion.

COLONIAL INTERIORS

Photographs and Measured Drawings of the Colonial and Early Federal Periods

By LEIGH FRENCH, Jr., A. I. A.

INTERIOR woodwork during the Colonial and early Federal periods was exactly what is demanded for "Colonial" interiors today. The character of workmanship in the colonies insured craftsmanship of excellent quality, and this, together with design carefully studied from the simpler contemporary English work, resulted in woodwork which it would be difficult to improve upon. For this reason close study is being made of such old American interiors as still exist, and measured drawings make possible the reproduction today of much of the finest woodwork of the seventeenth or eighteenth century. These forms, while they involve not a little subtlety in the details of design, demand merely the use of simple mechanical processes which are not beyond the skill of any reasonably proficient woodworker, sometimes of an ordinary carpenter.

IN this valuable work on the early American periods there are given illustrations from new photographs of interiors of the time, many of which are little known. These illustrations are of rooms of different kinds and of widely different types,—the early, somewhat severe type as well as that which was later and more refined and luxurious. Valuable illustrations are supplemented in many instances by invaluable working drawings,—details of wall paneling, mantels, over-mantels and fireplace surrounds; door and window trim; china closets; newels, balusters and other details of stairways, and designs for the stenciling of floors, together with notes on the colors originally used. It is a volume which in its practical usefulness will be of great value to architects whose work involves much use of early American interior design.

125 plates, 10 x 15 inches. Price $15

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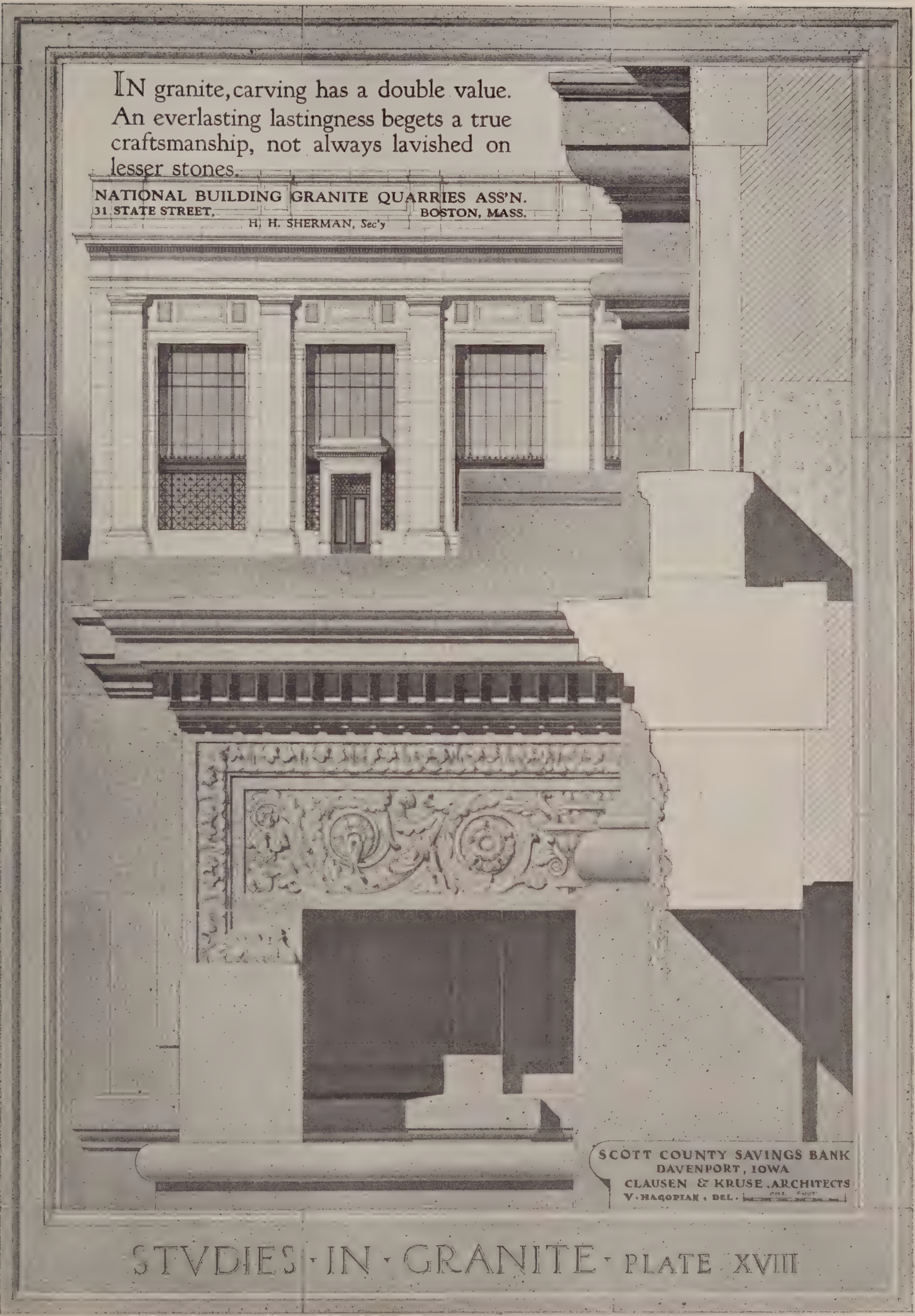

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CONTENTS *for* FEBRUARY 1925

PLATE ILLUSTRATIONS — Architect — Plate

Grant Park Stadium, Chicago . . . . . *Holabird & Roche* 9, 10

Field Museum of Natural History, Chicago . . . . . *Graham, Anderson, Probst & White* 11, 12

House of Ernest S. Barkwill, Esq., Cleveland . . . . . *Charles S. Schneider* 13, 14

Princeton Inn, Princeton, N. J. . . . . . *Andrew J. Thomas* 15, 16

The Forum Studies of European Precedents (Plates 25-32)

LETTERPRESS — Author — Page

Cover Design: Former Hancock House, Boston . . . . . *From a Drawing by Louis C. Rosenberg*

The Editor's Forum 41

Colonnade of the Piazza di San Pietro . . . . . *From a Sketch by Francis Keally* Frontispiece

Field Museum of Natural History, Chicago *C. F. Murphy; Graham, Anderson, Probst & White, Architects* 65

Princeton Inn, Princeton, N. J. . . . . . *Andrew J. Thomas, Architect* 69

House of Ernest S. Barkwill, Esq., Cleveland . . . . . *Charles S. Schneider, Architect* 75

Laconia High School, Laconia, N. H. . . . . . *Philip S. Avery, Architect* 77

Grant Park Stadium, Chicago . . . . . *Holabird & Roche, Architects* 79

LETTERPRESS (Concluded) — Author — Page

Some Minor Charleston Houses . . . . . *Albert Simons* 81

Forecast of 1925 Building Activity . . . . . *C. Stanley Taylor* 89

Illuminating the Exteriors of Banks . . . . . *Bassett Jones* 93

The Architecture of the Small Shop, Part I 97

Small Shop Display Windows 103

Small Art Shop, Ridgewood, N. J. . . . . . *Albert Marten Bedell, Architect* 105

Shop Building in Colonial Style, Watertown, Conn. . . . *Electus D. Litchfield & Rogers, Architects* 107

Block of English Shops, Upper Montclair, N. J. . . . . . *Francis A. Nelson, Architect* 109

Block of Shops at Falmouth, Mass. . . . . . *Hutchins & French, Architects* 111

Two Shops in Colonial Style . . . . . *Aymar Embury, II, Architect* 113

Store Building at Yorkship Village, N. J. . . . *Electus D. Litchfield & Rogers, Architects* 115

Two Shops at Yorkship Village, N. J. . . . *Electus D. Litchfield & Rogers, Architects* 117

Shop and Office Building in Buffalo . . . . . *Edward B. Green & Sons* 119

Details of a Louis XVI Salon at Versailles . . . . . *C. Hamilton Preston* 121

Several Types of French Tables . . . . . *Carroll Bill* 127

PARKER MORSE HOOPER, Editor

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THE EDITOR'S FORUM

S. BRECK PARKMAN TROWBRIDGE

THE architectural profession, not only in New York, but over the entire country, has sustained another great loss through the death, on January 29, of S. Breck Parkman Trowbridge. One of the foremost architects of his time, Mr. Trowbridge was a leading spirit in all organizations and movements tending toward the promotion and wider appreciation of architecture and the allied arts.

After graduating from Trinity College in 1883, and from the School of Architecture at Columbia University in 1886, he was sent to Greece by the Archæological Institute to superintend the erection of the building of the American School of Classical Studies in Athens. Following the completion of this work he studied in the Ecole des Beaux Arts in Paris, and returning to New York, became associated, four years later, with Goodhue Livingston in the firm of Trowbridge & Livingston. As the senior partner of this firm during the past 30 years, Mr. Trowbridge exercised great influence on the development of architecture in this country, not only through the numerous splendid bank and mercantile buildings designed by him, but also through his tireless energy and constructive interest in behalf of the establishment on a firm basis of every form of artistic expression in America. Mr. Trowbridge was an Incorporator, Vice-president and Trustee of the American Academy in Rome, a Fellow of the American Institute of Architects, a member of the National Institute of Arts and Letters, the National Academy of Design, a former President of the Architectural League of New York, of the Society of Beaux Arts Architects, and the Society of American Philhellenes. He was also appointed Chairman of the National Council of Fine Arts by President Roosevelt. Not alone in this country were his services and unusual ability recognized, for his foreign honors include the Legion of Honor, the Greek Order of the Redeemer, Grand Commander of Saint Sava, Serbia; Commander of the Order of the Crown, Rumania; and Honorary Member of the British Institute of Archæology.

NEW BUILDINGS AT HARVARD

ANNOUNCEMENT has been made of the fact that after consideration of the plans submitted by leading architects of the country, the jury appointed to select the design for Harvard's $5,000,000 School of Business Administration has selected that submitted by McKim, Mead & White. This group will be made up of a library, an administration building, recitation hall, research building, a group of dormitories and dining halls and a smaller group of houses to be used as residences for the professors.

AN EUROPEAN TOUR

ATTENTION is called to the fact that the European tours which for two years have been conducted under the auspices of the Institute of International Education will henceforth be directed by the Bureau of University Travel. These tours are planned particularly to meet the needs of practicing architects and architectural students, though a limited number of others who may desire to study architecture or other fine arts for their cultural value will be welcomed as members.

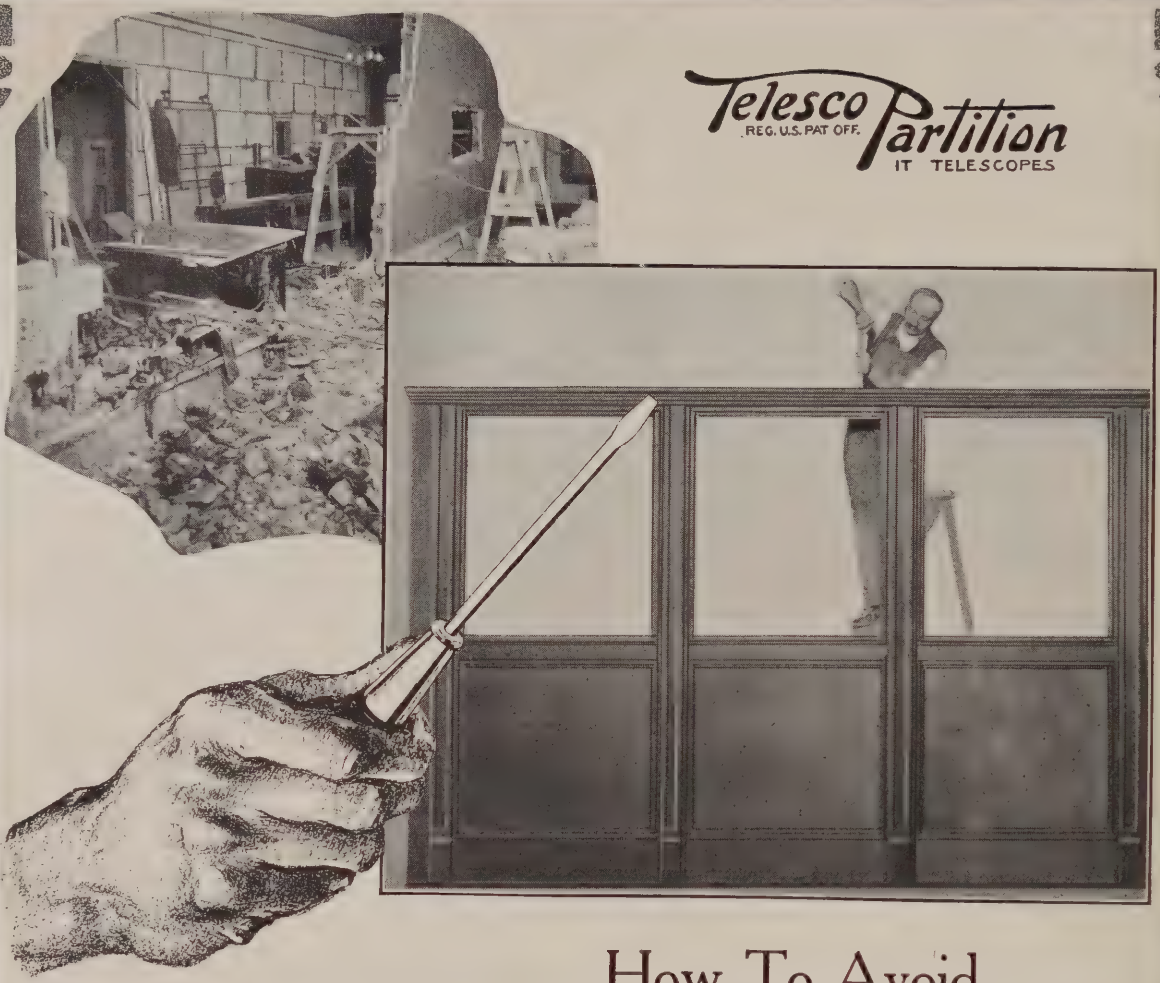
The itinerary for 1925 includes the most interesting places in England, France, Switzerland and Italy, and the departure from New York will be on June 17, the return to New York being planned for September 1. This year's tour will be under the immediate supervision of Professor Albert C. Phelps, of the College of Architecture, Cornell University, whose success with the previous tours made them so helpful to those who were members.

Information regarding the 1925 tour may be had by addressing the Bureau of University Travel, at its headquarters, 11 Boyd Street, Newton, Mass.

AN A. I. A. COMPETITION

THE Octagon House, the Washington headquarters of the American Institute of Architects, is a building of great historic and architectural interest. It is, however, so located that the passerby often does not see the old mansion or realize the interest which it possesses. It has been suggested that it would be well to place, in suitable relationship to the building and the two streets on which it faces, an appropriate device combining the elements of beauty, dignity and durability, which would call attention to the building and furnish information to all interested in the architecture and history of the country. In order to secure a design for such a device, the Building Committee of the American Institute of Architects has instituted a competition, open to all draftsmen, and will award prizes for the designs adjudged worthy under the terms of the program for this competition, which are now published.

The drawings, which must not exceed 24 by 36 inches in size, should show the design at 3 inches to the foot in direct elevation, sections or perspective sketches at any scale being included if desired by the competitor. Drawings should be on white paper in any rendering, and shall be delivered to D. Everett Waid, President of the American Institute of Architects, 1 Madison Avenue, New York, on or before April 1, 1925. All drawings must be sent flat, and with each should be, enclosed in a plain, opaque, sealed envelope without superscription or mark of any kind, the name and address of the competitor.



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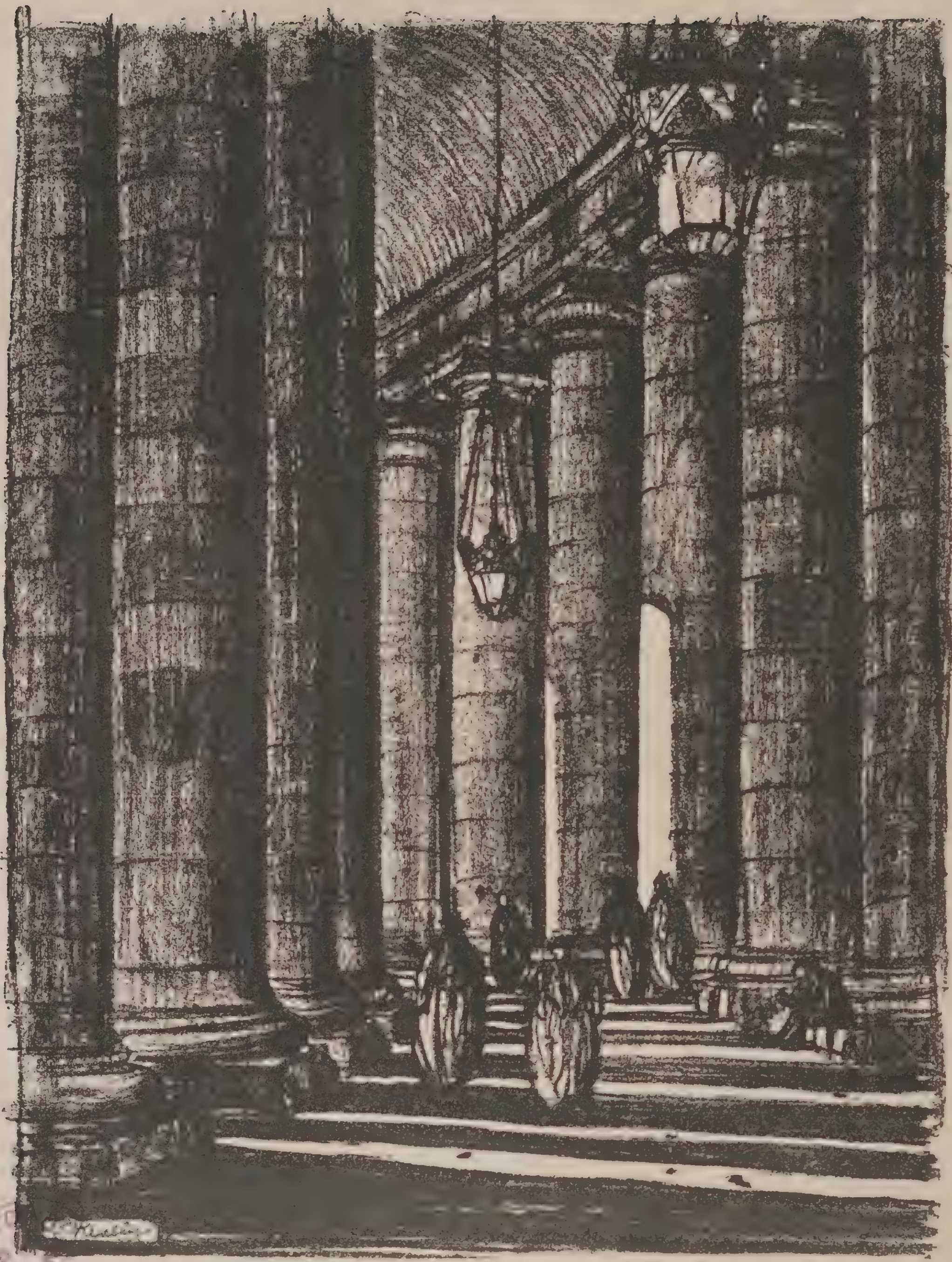

COLONNADE OF THE PIAZZA DI SAN PIETRO, ROME
FROM A SKETCH IN CHARCOAL BY FRANCIS KEALLY

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VOLUME XLII FEBRUARY 1925 NUMBER 2

The Field Museum of Natural History, Chicago

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

By C. F. MURPHY

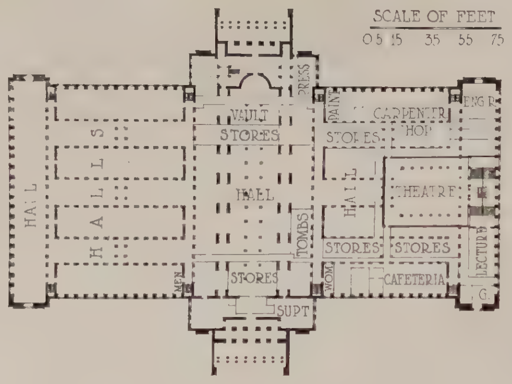
THE history of building proves that great enterprises usually meet with a succession of obstacles requiring time for solution, and that completion comes only after the lapse of a long period. St. Peter's required some 50 years for the erection of the mass of the building, and 150 years more for the final completion. It is, therefore, perhaps not unusual that the Field Museum of Natural History has required time for construction. Organized in the old Fine Arts Building in Jackson Park in 1894, the plans for the new building were completed in sketch form in 1902, reaching the stage of final working plans in 1906, and the building contract was let in 1911. The building was actually begun in 1915, and was opened to the public in 1921, 27 years from the time of the inception of the enterprise.

The conception of the idea of a natural history museum for Chicago grew out of the interest aroused by the collection of natural history exhibits brought together at the World's Columbian Exposition. After the close of that historic exposition, in 1894, Marshall Field, with wisdom and insight, generously provided the means for the founding of a permanent institution. The museum, covering a unique, attractive and instructive field, received immediate popular appreciation not only in Chicago but in a large part of the country tributary thereto, and under the patronage of Mr. Field great strides were made in adding largely to the number and to improving the character of the exhibits. As a result of this popular appreciation, the question of the permanent housing of the exhibits received the earnest consideration of Mr. Field, who with true and generous community spirit determined to house the exhibits in a permanent edifice. At a dinner given by him in 1901 to Henry Dibblee and E. R. Graham, they discussed the possibility and cost of removing the staff exterior of the Fine Arts Building in Jackson Park and reproducing it in marble. These estimates were accordingly made, but on account of the increasing number of exhibits, and since room was needed for further growth, it was decided that the building was too small and that the need of a new and larger building was even at that time apparent.

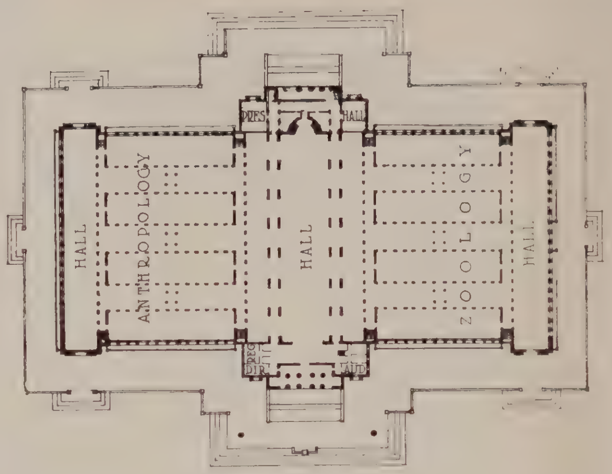
The matter of a new building thus initiated was taken up actively at frequent meetings between Mr. Field, Mr. Dibblee and Mr. Graham, and a number of sketches were developed. In the beginning no lines were laid down to govern the design except the general idea for a building of a capacity considerably greater than that of the old structure. Many studies were made comprising a central structure with flanking buildings. As a result of these the conviction finally developed that the existing old building, built for the purpose of the World's Fair, was an undoubted and widely recognized success. New studies were developed along these lines, using the same motifs of architecture, which seemed to be on the whole the most satisfactory. After a thorough discussion it was concluded that nothing finer could be had, and that the practical development of the accepted design on a larger scale should be the guide for subsequent procedure.

From then on ideas in accordance therewith were carefully developed, and a plan was agreed upon providing for a longitudinal nave down the center with a similar nave at right angles, the junction point of these two main naves being covered by a large dome. The working plans and specifications were within a few weeks of completion when in January, 1906 Mr. Field died. Shortly after his death, the Board of Trustees of the Field Museum, after full deliberation with the Director, Frederick Skiff, decided that the longitudinal nave and dome could be eliminated without in any way impairing the suitability of the building for exhibition purposes. The architects were therefore asked to revise the plans with this in view, which consideration resulted in the omission of the longitudinal nave and dome and the substitution of a plan which featured a single nave running through the building from end to end and connecting with exhibition halls arranged on either side.

In January, 1910 Stanley Field was elected President of the Museum, and since that date the work has been continued under his guidance. Before construction was actually begun there became evident a



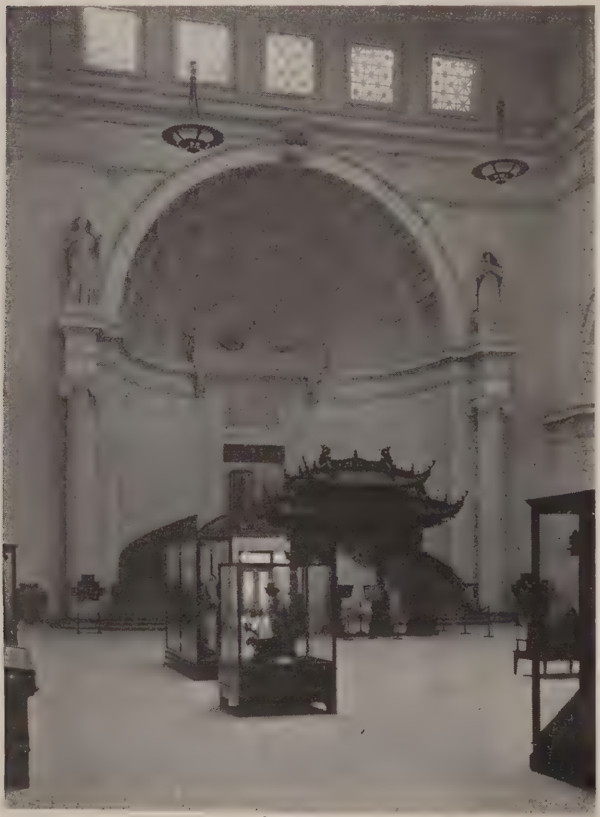
Ground Floor



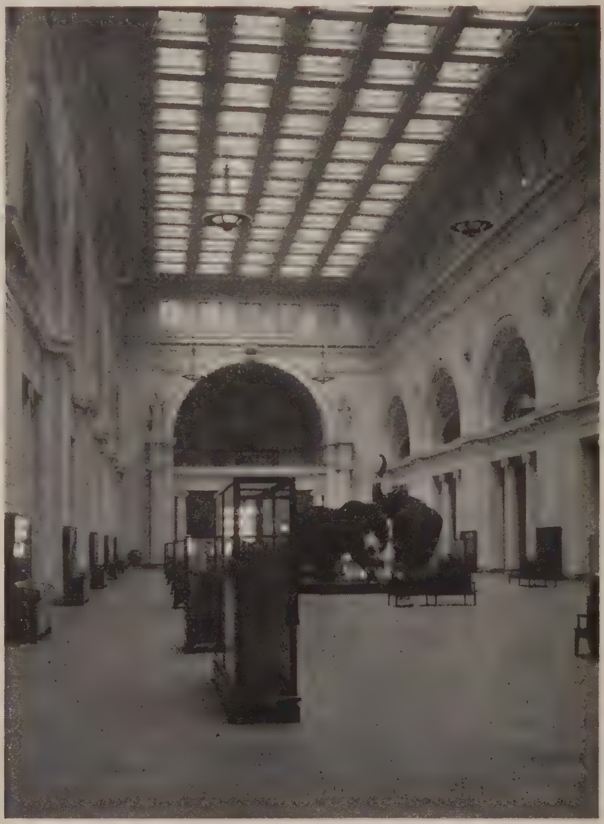
Main Floor

growing sentiment in favor of a site more nearly in the center of the city, and with this idea in mind, in January, 1912, after considering the various possibilities, a site was selected immediately east of the Illinois Central station and south of 12th Street, when extended. This site, after the making of more complete studies, met with the unanimous approval of the Trustees of the Museum, and accordingly a new contract was made with the South Park Commissioners for use of this location. At that time the waters of Lake Michigan covered the greater portion of the site in question, and it was necessary for the South Park Commissioners to make arrangements to fill in this area and to obtain the consent of the War Department to the changing of the lake's shore line.

The Field Museum of Natural History is a building about 350 feet wide by 700 feet long, consisting in its general arrangement of a great central hall or nave flanked by transverse exhibition halls on both sides, these exhibition halls being again united by transverse exhibition halls at each end of the structure. The building contains three stories and basement, the main central hall rising the entire height



Stairway in Stanley Field Hall



Stanley Field Hall

of the building, the rest of the structure being divided into stories as described. The building has been planned and designed to provide these accommodations: First, perfect exhibition rooms for the display of scientific collections. Second, adequate housing and equipment for the scientific working departments which belong with such a museum. Third, a building which would measure up to the high standards of Greek architecture and enhance the monumental appearance of the city. The exterior, about 80 feet high, is treated with a monumental Ionic order, the principal front being divided into a large pedimented central pavilion and two long wings terminated by smaller pavilions at each end. This order rests upon a stylobate or basement story, and is crowned by an attic pierced with windows to light the working floor.

The main motifs of the building are studied directly from the Erechtheion and similarly characterized by the very free decorative use of caryatid motifs and by the picturesque use of cornices brought together in the building at different levels. This fine example of the Ionic order has been followed very closely in the Field Museum, every detail of which has been carefully studied in comparison with the corresponding work in the Erechtheion, which was frankly accepted as the prototype to govern the design. One of the principal features of the building is the terrace, about 50 feet wide, extending all the way around the building and rising about 6 feet above the surrounding area. This terrace is defined by a retaining wall, steps and balustrades of the same marble as the building proper. The main entrance is provided with an ample flight of steps leading up to the central doorway and is emphasized by decorative flagstaffs placed upon the terrace at the right and left.

The material for the exterior is Georgia white marble, and the interior of the building is finished in such a manner as to form dignified backgrounds for the exhibits and in a style to harmonize with the Greek tradition followed for the outside of the building. In the basement is located the James Simpson Theater, seating 953 people, one of the finest of its kind. It is 100 feet long and 95 feet wide, with an average ceiling height of 23 feet. The architectural treatment is in keeping with the rest of the structure and is pure Greek in character. The central seating space is surrounded on three sides by a Doric colonnade forming lobbies 14 feet wide.

The first floor of the Museum is given over almost entirely to exhibition purposes, with the exception of the executive offices, and contains the principal gallery of the building, Stanley Field Hall, which is some 70 feet wide and extends from the north to the south entrance, a distance of some 280 feet. The height of the nave is 76 feet, covered by a skylight. The first floor extends over the whole lot area and is not subdivided save by the structural details of the building. Stanley Field Hall at the second floor level is flanked by a passageway running the entire length of the structure, opening out from which are exhibition spaces parallel to the nave the full depth of the building, and leading from these are exhibi-

Detail of Entrance to End Gallery

Detail of Entrance to Stanley Field Hall

tion halls some 40 feet wide by 175 feet long, the exhibition spaces being divided by courts, thus giving ample light to the exhibits. Bridge passageways between these courts afford convenient means of circulation. At the east and west ends of the building are large exhibition halls 50 feet in width extending the full depth of the building. The upper floors are given over entirely to administrative uses, including offices for the curators, taxidermists, etc. The various story heights are: basement, 16 feet; first floor, 24 feet; second floor, 20 feet, 6 inches; the third floor, 13 feet. The general system of lighting is from overhead fixtures, the main nave being lighted by eight ornamental chandeliers. Illumination is also provided in the exhibition cases.

The main building is built upon 60-foot Georgia pine piles, which are cut off 2 feet, 6 inches below the lake level. Upon these piles is a concrete foundation, and concrete or brick columns extend to grade. The space from where the piles are cut off to the bottom of the basement floor was filled in with lake sand, and upon this the basement floor was laid. Brick walls in all instances are carried up to the roof. Floors are of steel girders with tile above.

The mechanical equipment includes three 300 h.p. boilers for heating purposes, supplying a two-pipe, underneath heating system. Fans supply necessary ventilation for the basement as well as fresh air to the entrance and fresh air and exhaust to the James Simpson Theater. There are the usual plumbing pumps and a refrigerating system for various purposes. There is also a 1000-gallon fire pump, and mains lead out through the building. There are three elevators, one for passengers rising the full height of the building, a large freight elevator for the handling of exhibits, and an auxiliary elevator for taking in material from the terrace to the basement. The main drainage system consists of a 24-inch sewer running to the lake and a 12-inch sanitary sewer running to Indiana Avenue. Water supply is taken from Indiana Avenue through an 8-inch supply main.

The work on the landscaping and terraces now being carried on will complete a setting for the building, which will stand for all time as a monument worthy in all respects not only of Marshall Field, but of the day and generation in which he lived.

The development of the Museum proves what may be done when municipal authorities coöperate with individuals or associations prepared to carry on some important work of a public nature. In this instance little could have been accomplished had not the South Park Commissioners aided in supplying a site for the Museum by securing the filling in of lake area, thus providing an appropriate location for buildings suitable to house an important Chicago institution.

Additional illustrations appear on Plates 11 and 12.

A Typical Exhibition Hall

Detail of Gallery, Stanley Field Hall

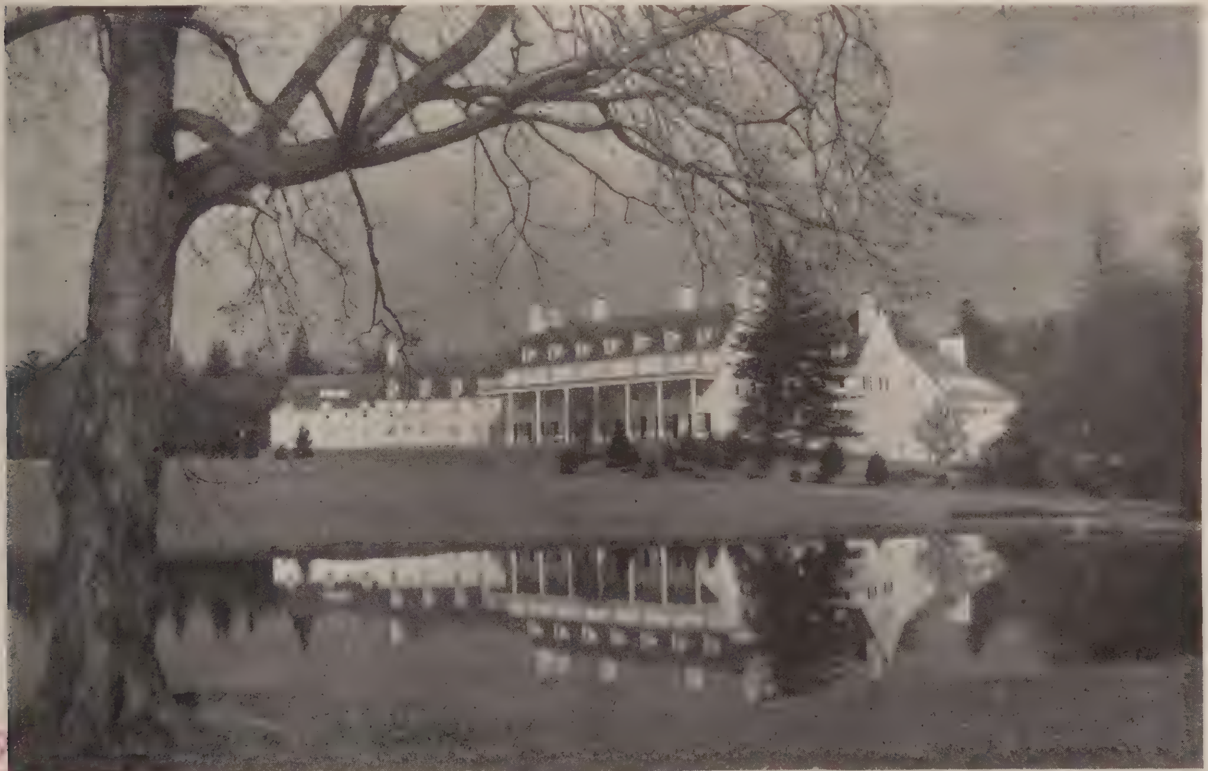
The Princeton Inn, Princeton, N. J.

ANDREW J. THOMAS, Architect

WHAT more interesting problem could an architect be asked to solve than that of designing a modern inn for an ancient seat of learning?

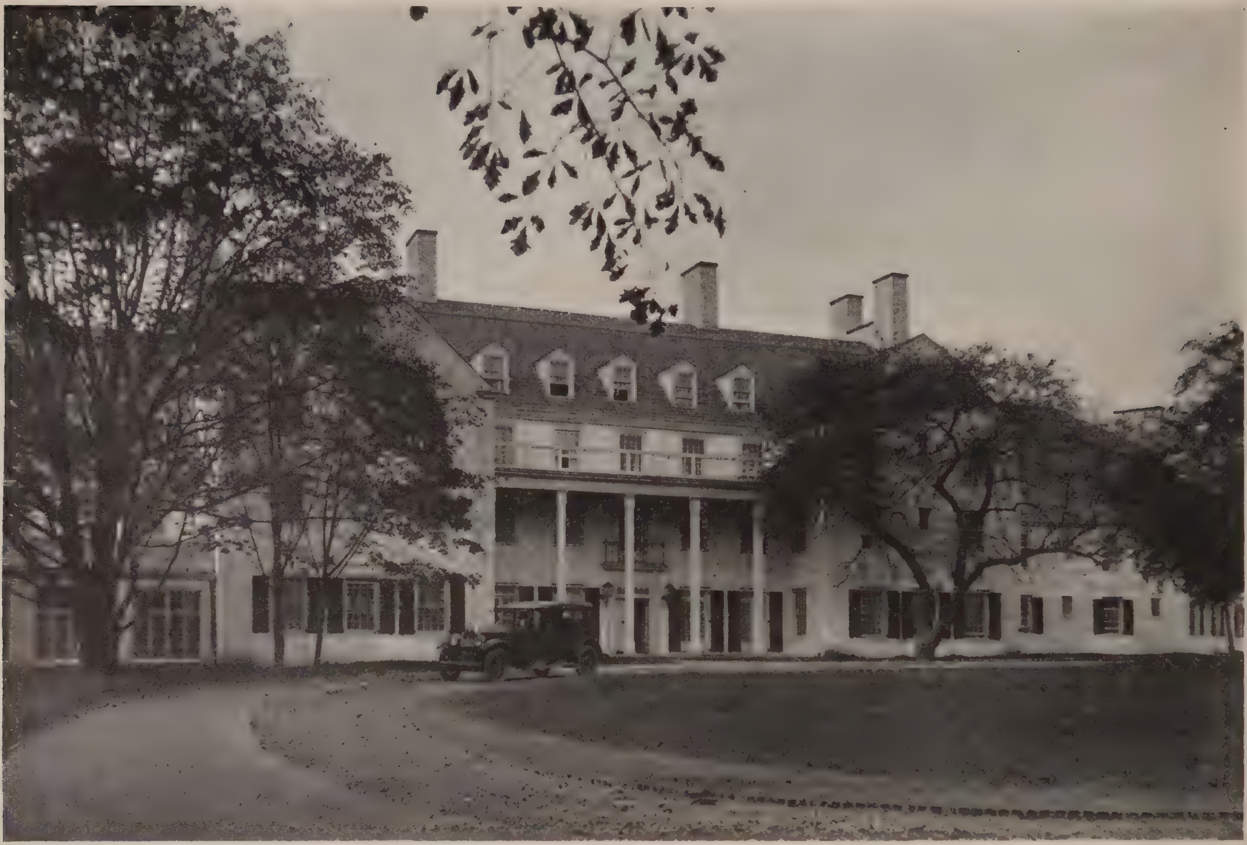
The Princeton Inn, although not officially a part of Princeton University, was promoted by a group of Princeton alumni, primarily to accommodate the needs of the University, situated as it is in a small town which has hitherto lacked a large modern hotel. Since it is in a sense identified with the University, the sponsors of the Inn felt that it should be designed in the spirit of the University. To this end they chose a beautiful site overlooking the golf course, with the splendid Graduate School and its famous Cleveland Tower in the distance across the golf course. A long, rambling grouping seemed best for appearance's sake, instead of the usual small city hotel, which obviously is the economical type, but which would have been a blot upon the beautiful Princeton landscape. Another requirement which had to be met was that any hostelry in a college town must be planned in an elastic manner. It must be arranged not only to accommodate the few professorial families which prefer hotel to home life, and to provide for the intermittent visits of students' relatives, but it must also be equipped to take care of crowds of visitors, and of alumni returning for athletic events and college celebrations. For these reasons, to design an inn which may be managed economically for the accommodation of the ordinary, small number of guests and the occasional crowd is a difficult problem, requiring much thought and study.

The Inn which has been recently completed at Princeton seems to successfully and attractively meet all necessary requirements. Its fine location is only a short distance from, and almost in sight of, the railroad terminus. As approached from the station the building stands on level ground, and its whitewashed brick walls and high colonnaded portico screened by picturesque old apple trees make an attractive picture for the arriving visitor. In its general design as well as in its details this inn possesses a great deal of old time charm and quaintness. The building is sufficiently broken up by bays and low wings so that its actual size is not at first appreciated. The four stories do not make the building look high, because of its length and the high gambrel roof. The varying and carefully studied scale of the window openings adds much to the early American quality of the building, which recalls the architecture of the eighteenth century. Built partly of local field stone and party of brick, roughly laid in a style called "skintled," the exterior whitewashed walls have an interesting textural value. In construction

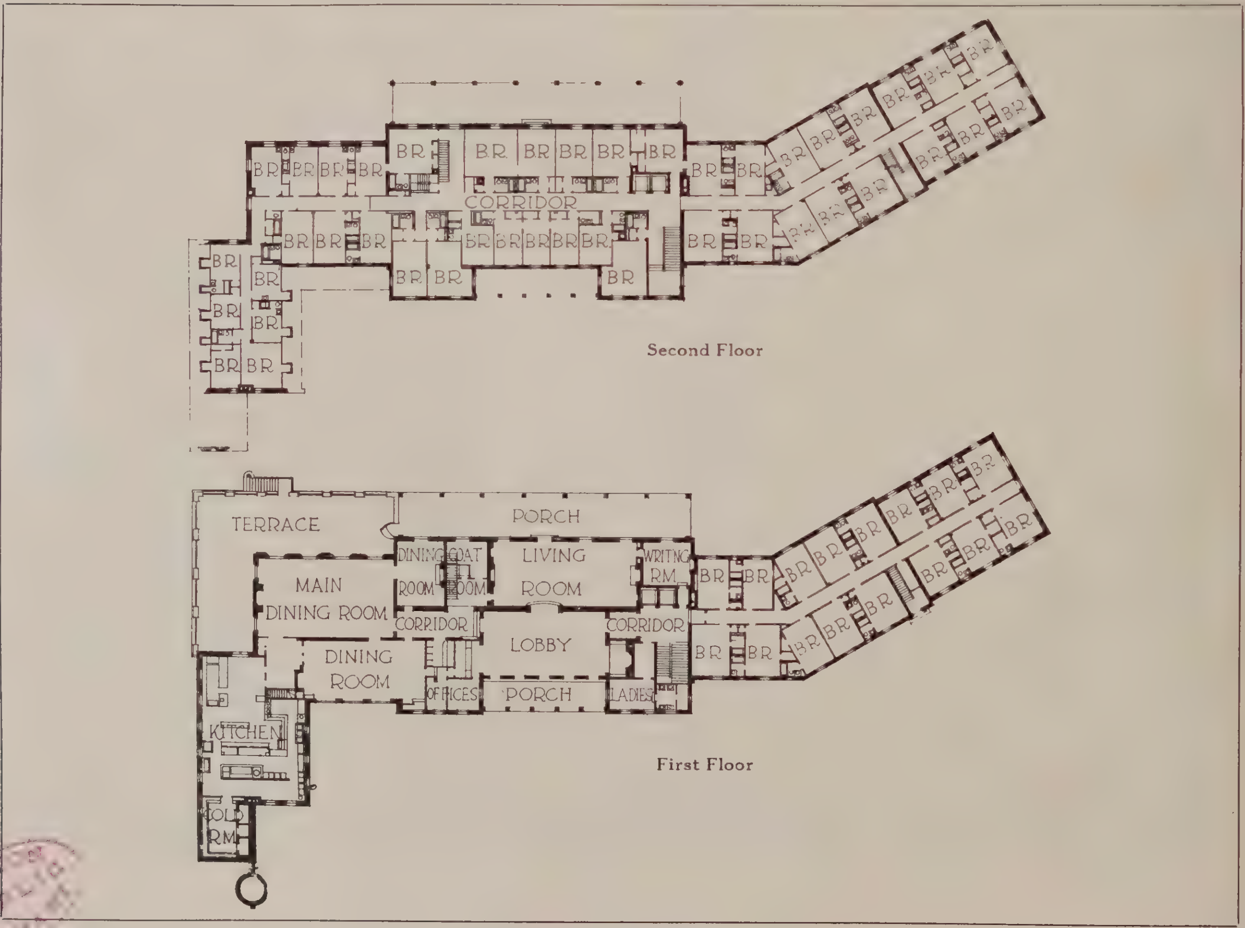


Photos. Van Anda

The Princeton Inn from the Golf Course



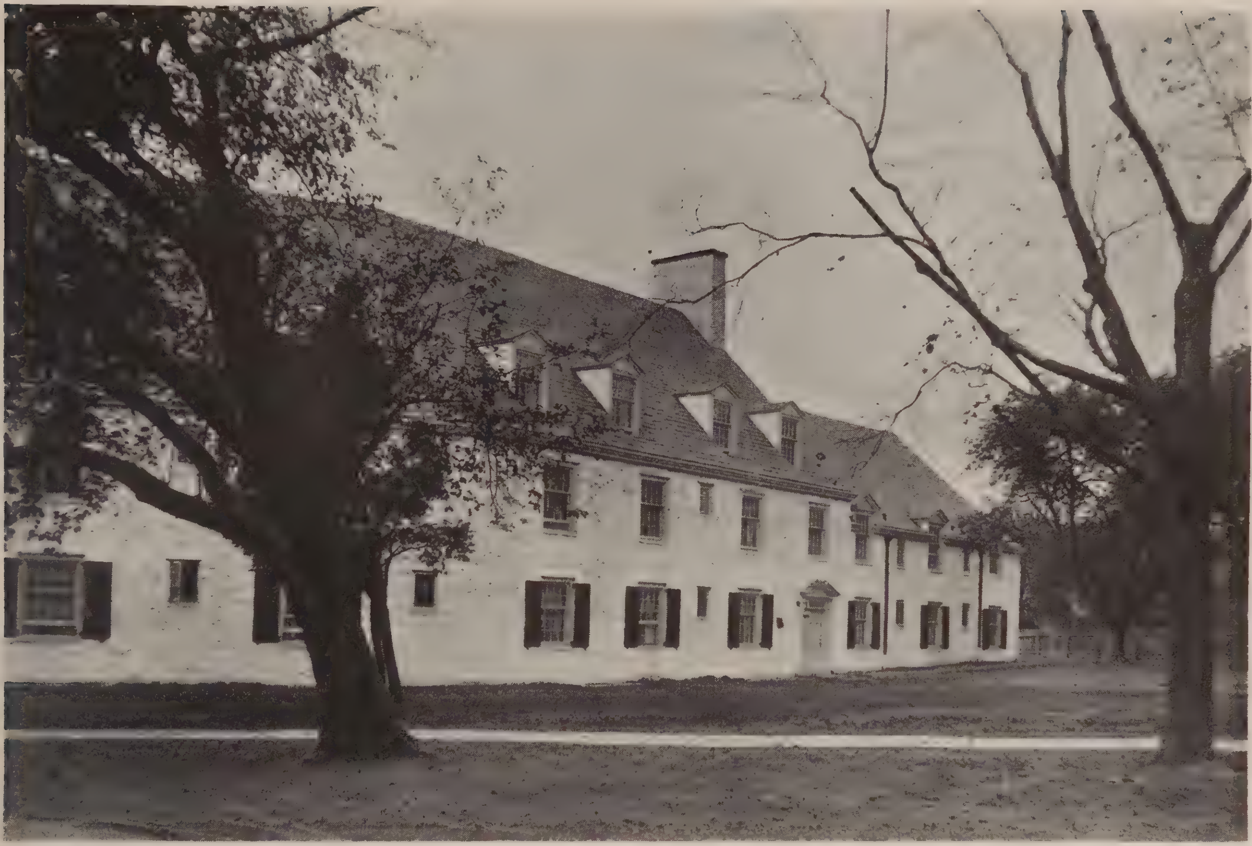
ENTRANCE FRONT



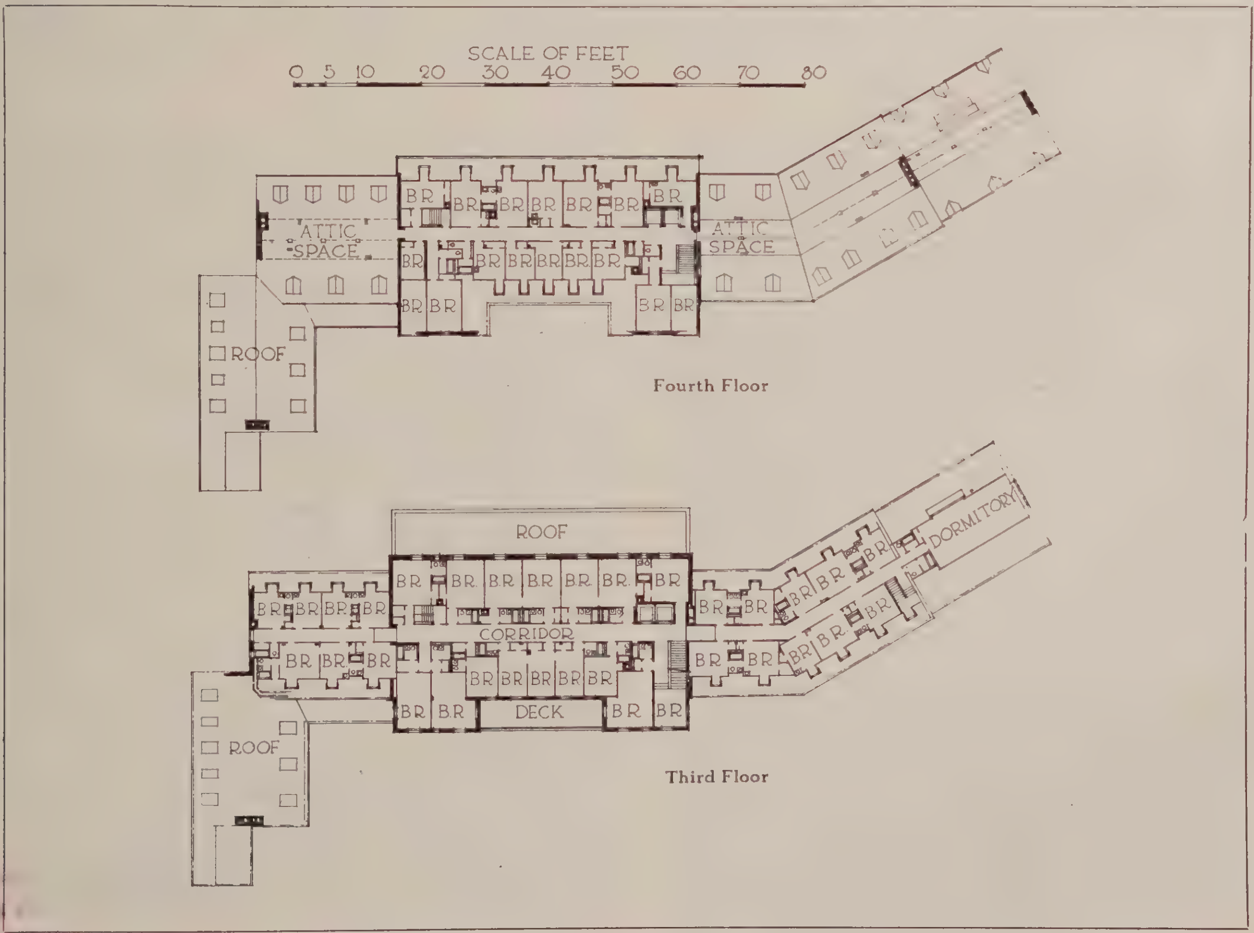
Second Floor

First Floor

THE PRINCETON INN, PRINCETON, N. J.
ANDREW J. THOMAS, ARCHITECT



BEDROOM WING



P...
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THE PRINCETON INN, PRINCETON, N. J.
ANDREW J. THOMAS, ARCHITECT

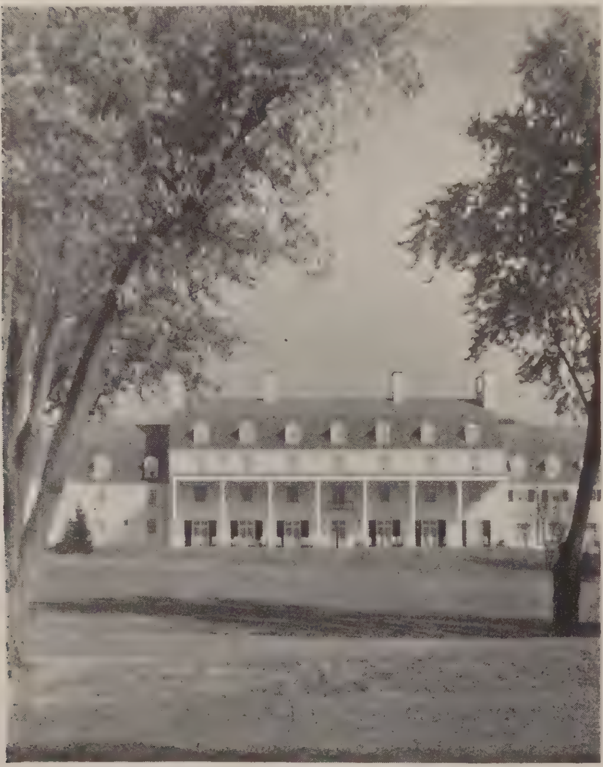
One End of Living Room

the building is of reinforced concrete, except for the framing of the roofs which is timber. The stairways, however, are fireproof, and the roofs are covered with slate. On the first floor, blinds and paneled shutters painted a blackish green add to its Colonial character and homelike atmosphere.

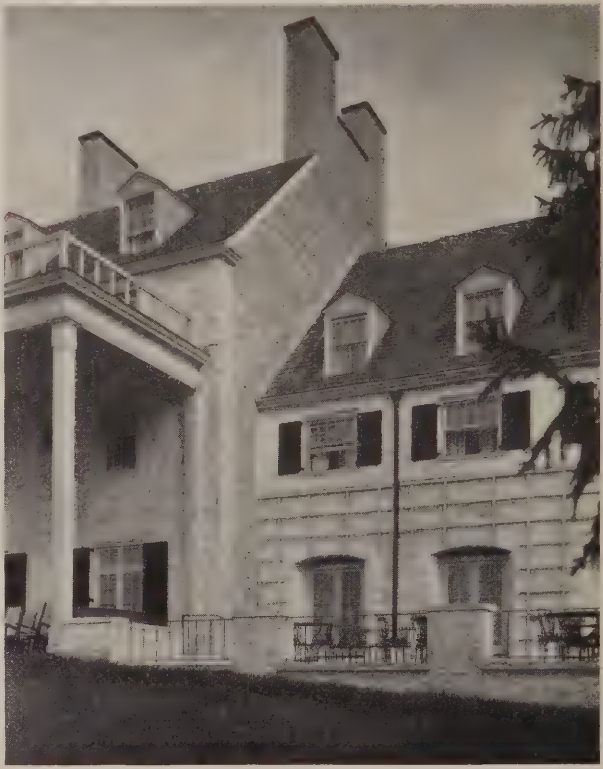
The plan shows a main building 105 feet long by 85 feet wide, from which low wings extend north and south. The northern wing, in length about 110 feet, extends at an angle of 30° toward the northwest, while the wing at the south runs parallel to the main building a distance of 49 feet, and then continues at a right angle 73 feet farther. This variation in the positions of the two wings makes the mass of the building outside and the layout inside more interesting and rambling.

The entrance side of the Inn shows two projecting bays, which form a recessed porch 11 feet in depth. This porch has a two-story portico, formed by slender square posts with simple caps, and light entablature and balustrade above. The main entrance door, illustrated on page 73, shows an interesting design in the Colonial style, with pilasters and glass transom in which small arches divide it into six glass panels. An unusually heavy entablature, surmounted by a light iron railing, protects the casement window extending down to the level of the second floor. Large lanterns of interesting design, suggestive of early American work, balance the entrance door on either side. The large, white, paneled doors with their eagle knockers give a domestic touch to this principal entrance, which opens directly into the lobby.

On entering, the large lobby greets the visitor. At one end an arched opening leads to the office of the Inn, which is balanced at the other end of the lobby by a similar archway opening into a fireplace alcove with recessed seats on each side. This arrangement of the lobby gives the hospitable, informal atmosphere of an old country tavern. Opposite the entrance door another large archway leads down two steps into the great living room. One of the striking features of the plan is the vista obtained as the visitor enters the front door and looks west through the opening from the lobby into the living room, and then out through the long casement doors opposite, which open onto the broad west porch. This vista through the Inn carries the eye out across the sloping lawn and a pond which lies in a hollow of the golf course to the distant spire and roofs of the beautiful group of English Gothic buildings of the Graduate School of Princeton University. The airy spacious-



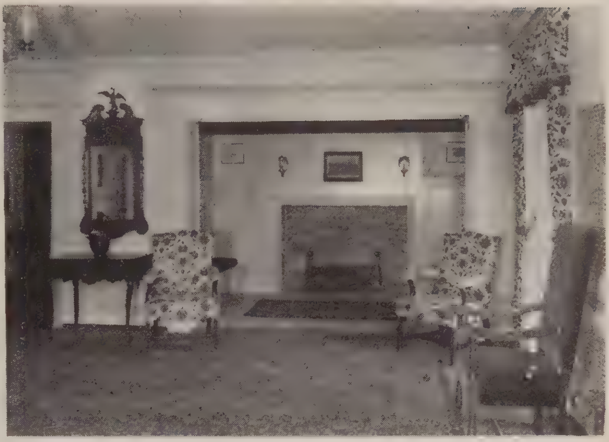
West Elevation, Overlooking Golf Course



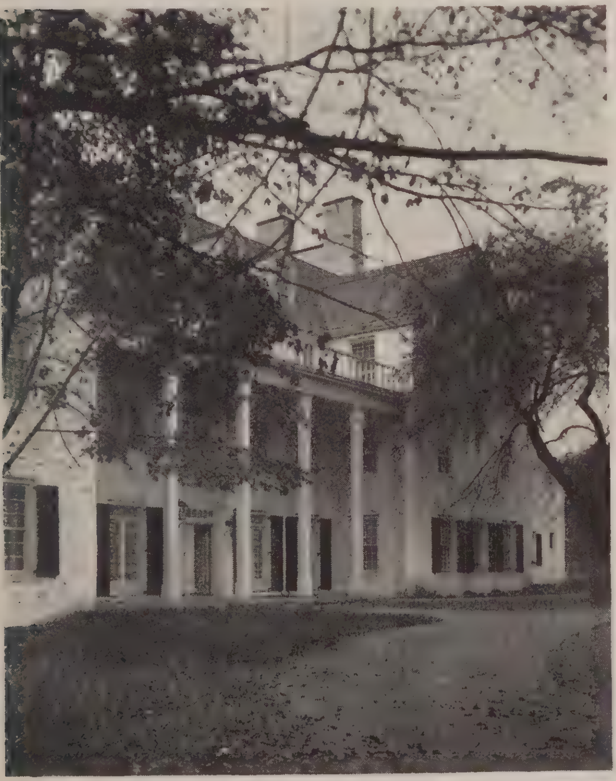
Corner of Terrace and West Elevation

ness and the cheerful lightness of all the principal rooms in the Inn produce to a remarkable degree the atmosphere of a private country home. The long living room, which is painted white and finished in the style of the early Republic, has an attractive fireplace with paneled overmantel at each end. Comfortable couches and easy chairs, together with tables holding old fashioned lamps, are scattered about the room and hospitably grouped about each of the fireplaces. The walls of this room are painted gray and the woodwork white, which makes a good background for the one-tone blue carpet rugs and the gay printed linen furniture coverings and window hangings, in shades of blue, green and old rose.

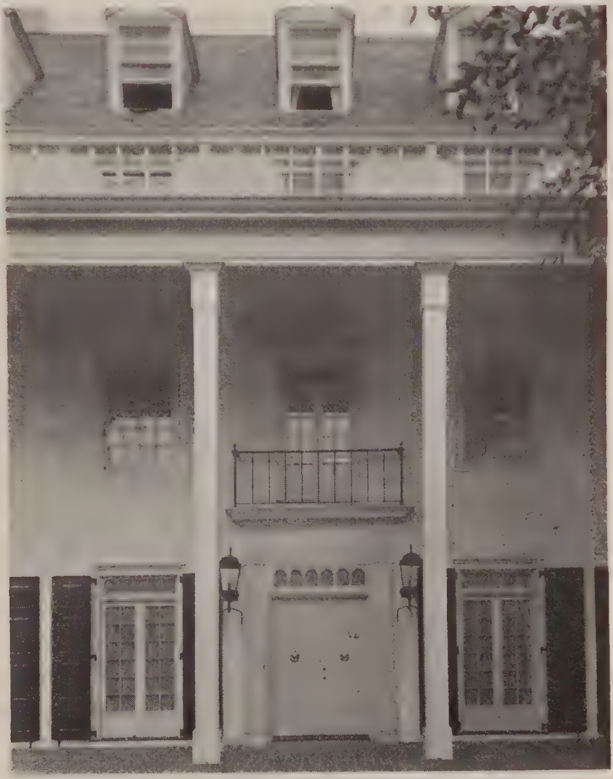
At each end of the entrance lobby corridors lead to the north and south. The corridor on the north leads to the elevators, the main stairway and the women's retiring room, while that at the south leads down three steps to the two large dining rooms. The smaller of these dining rooms is decorated in the early American style of the first settlers in the late seventeenth century, with flagstone floor, pine paneling, beamed ceiling and an old fashioned brick fireplace. The larger dining room is decorated in a more formal adaptation of the Colonial style, with white painted woodwork and yellow plaster walls. The tables and chairs in this room are finished in mahogany in the Windsor style, and the lighting fixtures are careful reproductions of early American oil and candle lamps. Conveniently located in a corner formed by the two dining rooms is a large serving pantry which leads directly into the kitchen, a room 36 feet wide by 50 feet long, lighted by many windows on three sides and opening directly at the east onto an open terrace where tea is served in the afternoon. At the end of the kitchen wing is a cold storage room 18 feet square. From one corner of this room a whitewashed stone wall, broken by a very picturesque round gatehouse, shuts off from view the service yard of the Inn. Between the living room and the main dining room is a private dining room, a men's coat room, and a secondary stairway opening off the south corridor. At the north end of the living room, back of the elevators, is a writing room, 12 feet square, with fireplace and short entry which leads to the north corridor. The first floor of the entire northern wing is occupied by 16 single bedrooms with individual baths, intended for the use of bachelor guests. Running the entire



Fireplace Alcove in Lobby



Main Entrance Drive



Entrance Door and Portico

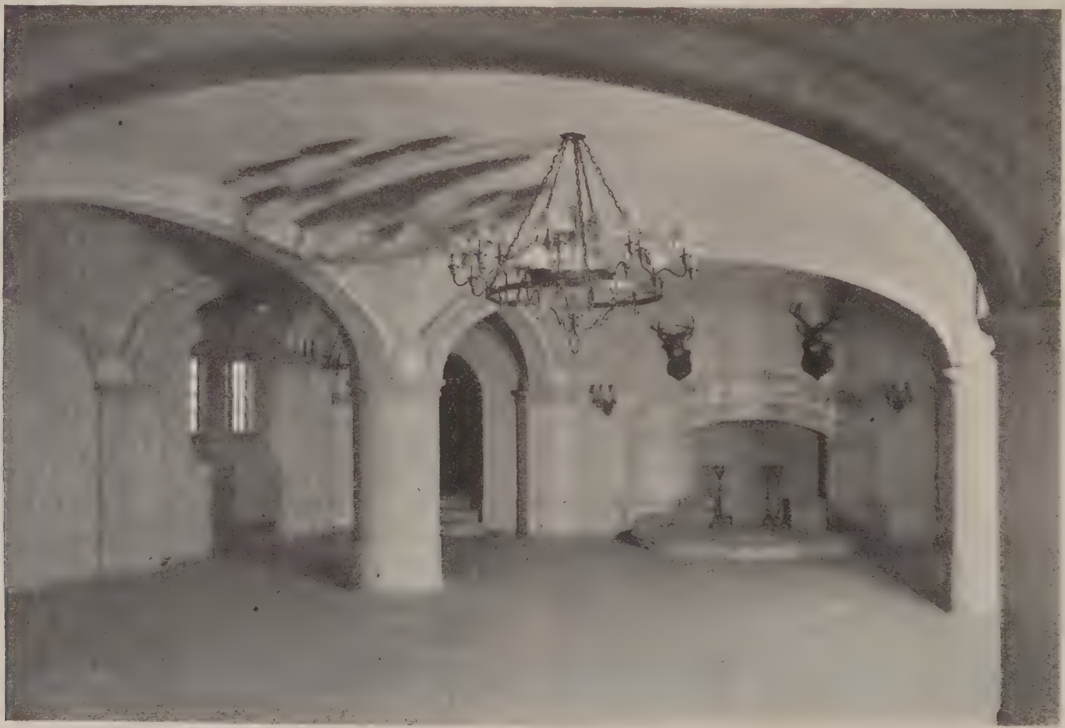
105 feet of the west side of the main building, is the wide, two-story porch, suggesting the famous eastern porch at Mt. Vernon.

The second floor plan shows an interesting arrangement of single and double bedrooms, all of which have individual baths and spacious closets. Of the 107 bedrooms in the Inn, 45 are located on this floor. These bedrooms are decorated in a simple manner, with white painted woodwork and quaint, old fashioned wallpaper and reproductions of early American furniture in pine, maple and mahogany. On the third floor are 32 bedrooms, about two thirds of which have individual baths. At the north end of this floor is located a large dormitory for men, which is equipped with 20 single beds. Adjacent to this dormitory are two lavatories and showers. There is a fourth floor only in the main building. Here are located 14 additional bedrooms, only two of which have individual baths, as general baths are located at both ends of the long corridor dividing the rooms.

The basement floor is largely devoted to mechanical equipment, boilers and coal bins, together with storage and servants' rooms. A completely equipped laundry is located under the kitchen and southwest terrace. The only public room on this floor is a large grill room located in the north wing This room is attractively finished in a rugged adaptation of the Tudor style, massive imitation stone piers supporting the heavy ribs of the low vaulted ceiling. The wrought iron chandeliers in this room are of the period, as are also the candle wall brackets. The chandeliers show an added feature of interest in the introduction of a model of a full rigged clipper ship of tin and iron. Behind the grill room are a large locker room and toilet and shower facilities for the use of golfers who are hotel guests.

Gate House to the Entrance Court

With such unusual care have all of the exterior details as well as the locating and spacing of the windows been studied that the effect of the whole design is remarkably consistent and in excellent scale. The atmosphere is that of hospitable country life and agrees well with Princeton's rich traditions.



Unfurnished Grill Room in Basement

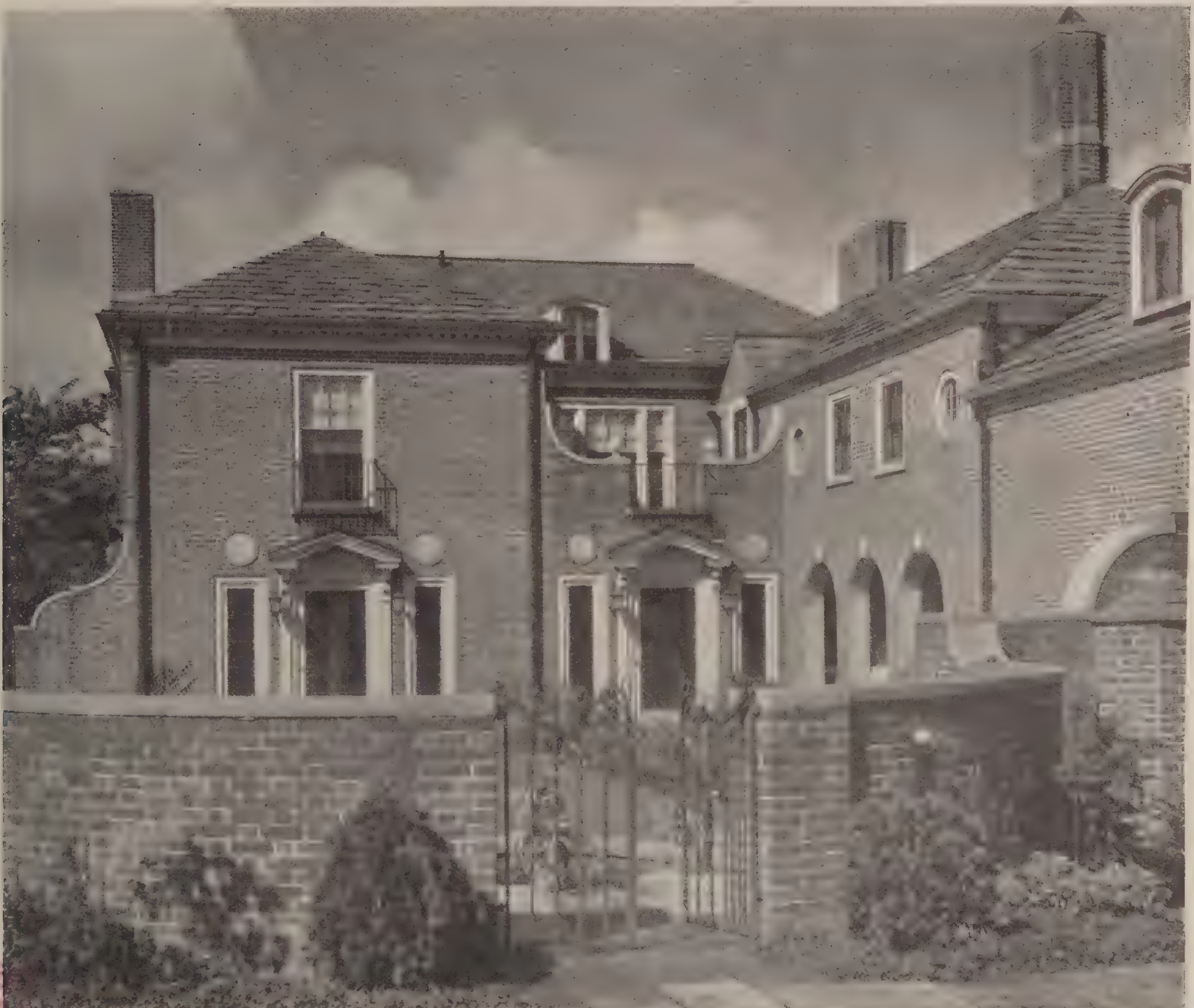
The House of Ernest S. Barkwill, Esq., Cleveland

CHARLES S. SCHNEIDER, Architect

ALTHOUGH located on property which only a short time ago was considered quite suburban, this interesting Georgian house is designed to meet the rapid encroachment of urban surroundings. The house shows in design a careful and successful study of balanced detail combined with pleasing areas of interesting brickwork. The brick, specially made for this house, possesses an unusual range of varying tones of red, copied from old English handmade brick of the Georgian period. The trimmings are stone, and the cornice of the house, which is of wood painted white, is another characteristic feature of the period of English architecture made famous by Inigo Jones and Wren. For the roof, slates of random widths and varying colors are used, giving a pleasing contrast in both texture and material to the brickwork of the walls.

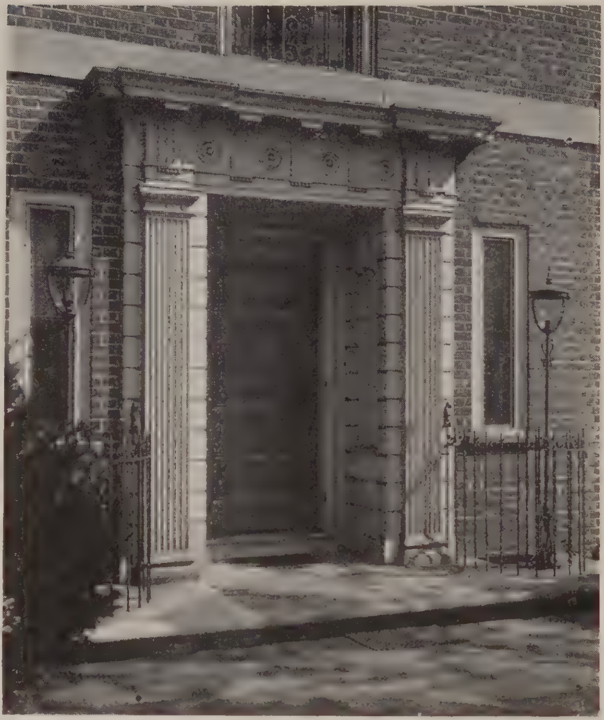
The plan shows an interesting arrangement. The main part of the house is rectangular in shape, with two projecting wings at the rear. The shorter of these wings forms a sun-porch on the ground floor, while the other extends to the back of the property, including not only the service department of the house but the garage as well. In the angle formed by the main house and this service wing a small garden is laid out, the high brick wall of which gives a feeling of privacy and seclusion. This garden is one of the unusual and attractive features of the plan. Wrought iron balconies, grilles and gates are among the details which contribute to the success of the design as a whole.

The center hall leads from the entrance to the sun-porch and garden at the rear. The axial line, which extends through the doors of the front entrance and openings from the main hall to the sun-porch, is continued by a broad path through the

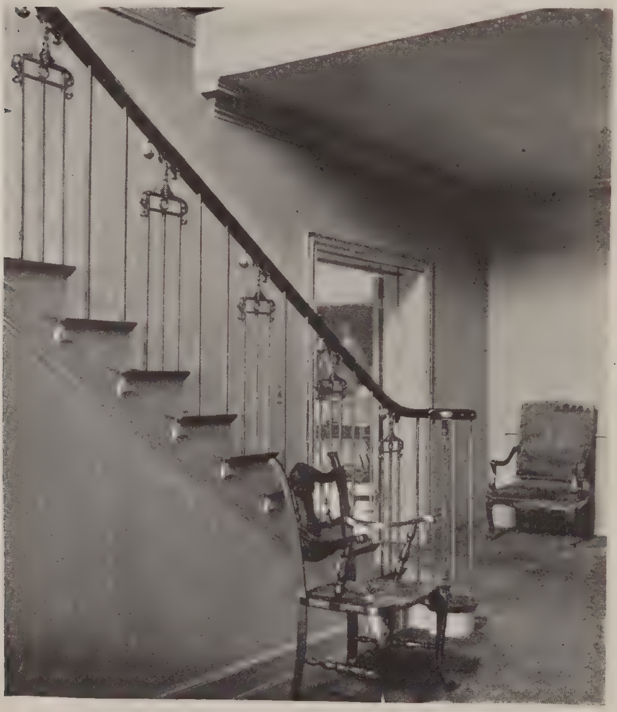


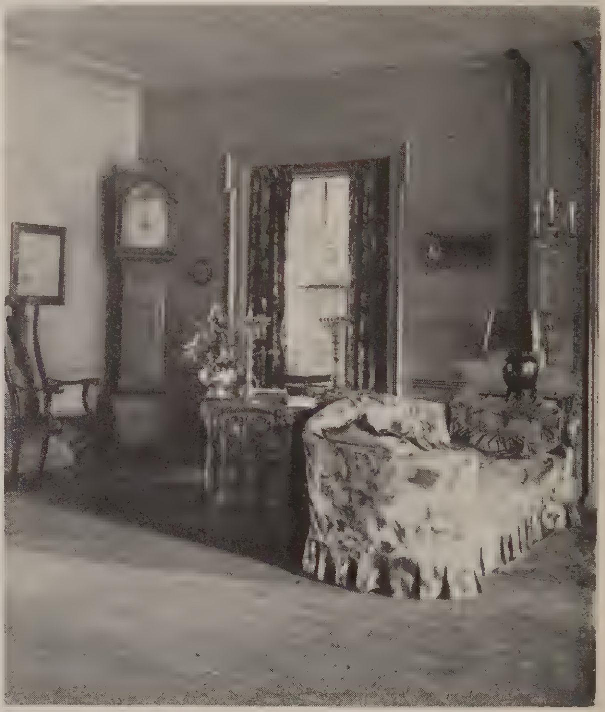
Entrance to Walled Garden

garden, terminating at a wall fountain. On the right of the entrance hall is a well proportioned living room, in which the windows, doors and fireplace are carefully balanced and centered. On either side of the entrance vestibule are cloak rooms. On the left of the entrance hall are the library and dining room. Good judgment is shown in restricting the window openings in the library to only one wall, thus permitting the successful use of recessed bookcases and wall panels for the fireplace end of the room, as may be seen in the illustration on Plate 14. The architectural treatment of the dining room, with its built-in corner cupboards and shallow bay windows, is carefully carried out, as are all of the interiors, in the Georgian style. The consistency evidenced by the use of a definite style of architecture, not only for the exterior but also for the interior of this house, is most laudable and worthy of emulation. Beyond the dining room are the butler's pantry, kitchen, servants' hall, etc., which are paralleled by a corridor leading through an open garden arcade to the garage at the rear. This must be a very comfortable and pleasant house to live in at any season of the year; the garage may be reached without going out of doors in the winter, and the walled garden, upon which open the casement doors of the living porch and the arcade, furnishes a cool and secluded retreat for the warm, summer evenings.


Detail of Entrance Door

The house is furnished and decorated in an attractive and homelike manner. Window draperies are hung within the reveals, leaving the carefully detailed trim exposed. Another unusual feature, which is becoming constantly more popular in interior decoration, is the covering of all of the floors with carpeting in single colors. The floors of the sun-porch and entrance vestibule are of black and white marble. The furniture in the various rooms is of the American Colonial and English Georgian periods, thus emphasizing the character of the style consistently and uniformly followed throughout the design of this interesting and well designed and furnished house.


Detail of Stairway


Corner of Living Room

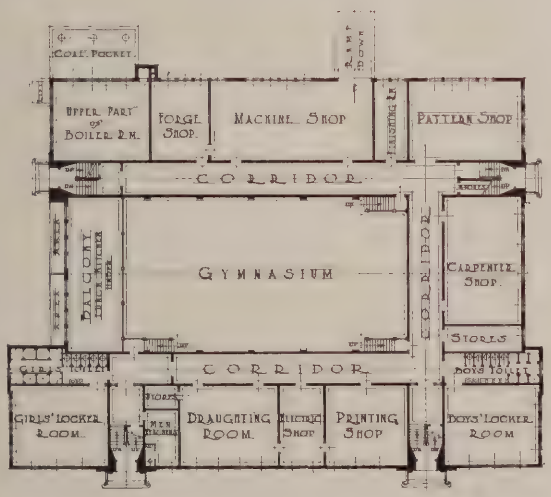
The Laconia High School, Laconia, N. H.

PHILIP S. AVERY, **Architect**

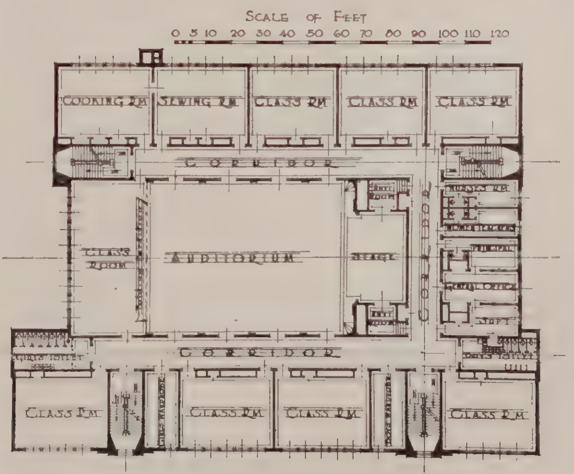
IN the Laconia High School the architect was confronted with the not unusual problem of designing with a limited appropriation a building to meet rather extensive requirements. The program called for not only the usual high school classroom spaces, including science laboratories and a commercial department, but also a gymnasium, an auditorium to be used for civic purposes, and well equipped manual training and domestic science departments. The entire building was completed at a cost of $227,695, the finished grading, walks and planting cost $10,000, and the equipment cost $40,000. It may be seen, therefore, that economy of design and construction was the keynote throughout. The building, 165 feet long by 125 feet wide, is located 200 feet back from the street and is surrounded by well kept lawns. In the rear is a tract of eight acres that will be developed shortly into an athletic field.

The exterior walls are of "antique" water struck brick laid in Flemish bond. The many dark headers and the uneven stretchers make an interesting and colorful wall. The cornice, belt courses, entrances, and other ornamental parts are of cast stone. The stair halls only are of fireproof construction. These are enclosed in kalomein and wire glass partitions. The auditorium floor, the balcony, and the roof over it are supported on steel girders, but all intermediate framing and all classroom framing is of wood. The finish on the ground floor is Carolina pine, while the other two floors are finished in native oak. Maple was used for all of the floors throughout.

The basement floor is 4 feet below the ground level, while the boiler room and the gymnasium are 6 feet lower. The boiler room is of fireproof con-



First Floor



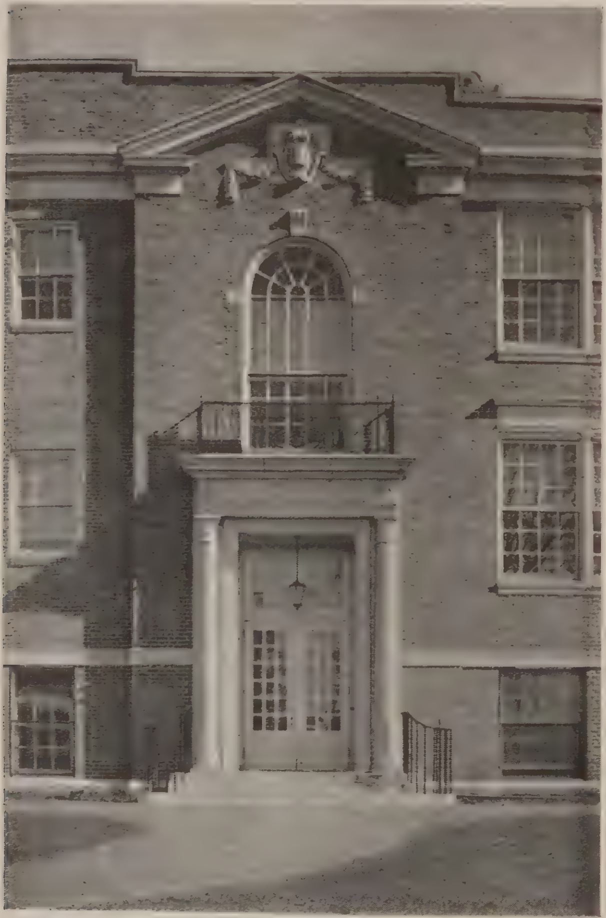
Second Floor

struction and contains two boilers. Adjacent to the boiler room are the coal pockets, with a capacity of 100 tons, the transformer vault, and the ash hoist. The switchboard for the building is in a steel cabinet in the boiler room. The gymnasium is 16 feet in height to the girders, and has a playing space 80 feet long and 50 feet wide. At one end is a balcony, under which are an equipment room, an office for the physical director, and a lunch kitchen. On the ground floor level, adjacent to the gymnasium, are showers and locker rooms for the boys at one end of the building and for the girls at the other end.

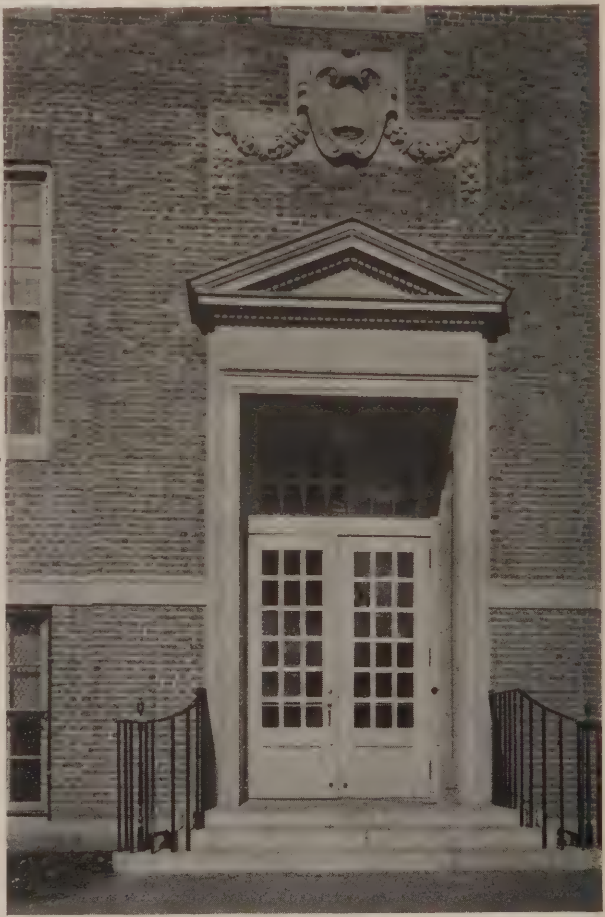
On the ground floor are the mechanical classrooms with accommodations for 145 boys at one time. In the rear are the forge room, of fireproof construction, the machine shop, a finishing room, and the pattern shop. At the end of the building are the woodworking shop and a storeroom for lumber. In front are the print shop, the electrical room, and the drafting room. Tool rooms for the various shops are under the stairways and in closets adjacent to the rooms. Next to the drafting room is a rest room, suitably fitted up for the men teachers.

On the first floor are the kitchen and the sewing rooms for the domestic science department, and nine recitation rooms. Each recitation room in the building accommodates 35 pupils and has the usual equipment of teachers' cupboards, telephone, etc. In the central part of the building is the auditorium with a seating capacity of 806. At the rear are folding doors, which make it possible to open two classrooms so that 1,100 people can be seated. It is possible to darken the auditorium so that motion pictures can be shown at any time during the day. The stage is 20 feet deep and 30 feet wide, and has dressing rooms on either side.

The laboratories are located at one end of the second floor, with a lecture room near by. At the other end are the bookkeeping room and the typewriting room of the commerce department. There are six recitation rooms on this floor besides the main study hall and library. All recitation rooms have east or west exposure. Coat rooms for boys and girls are located next to the front stairways on the first and second floors, while toilets and lavatories for the two sexes are in rooms at either end of the front corridors on all three floors. By this arrangement there is no waste space at the ends of the corridors. The radiators throughout the building, with the exception of those in the auditorium and the gymnasium, are on the exterior walls and have asbestos-lined shields in front of them. Fresh air is admitted to the rooms from the windows over the radiators by means of glass deflectors. The foul air ducts are in the interior walls. The indirect system is used in the auditorium and the gymnasium.



Detail of One of Main Entrances



Detail of One of Side Entrances

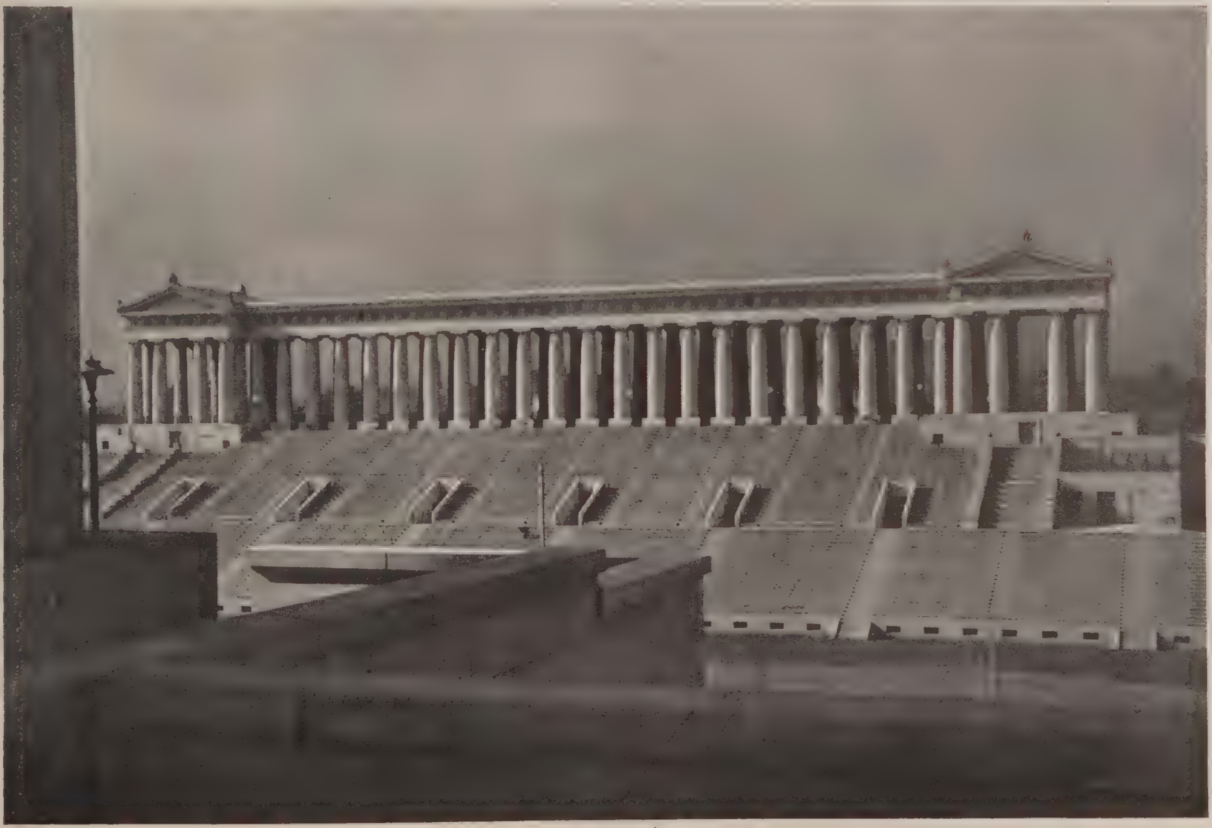
The Grant Park Stadium, Chicago

HOLABIRD & ROCHE, Architects

GRANT PARK is regarded by all Chicago as its Place of Pageants. Whether it be a municipal Christmas tree or the Victory Way, a Pershing parade or a military review, there is no question as to the scene. Quite naturally, then, the city was pleased when it was announced that the South Park Commissioners, under whose direction Grant Park is maintained, had determined to build there a stadium in which vast crowds could be accommodated. The Commissioners held a competition in which several of the larger firms of Chicago architects took part. As a result of the decision of the jury of award, the design of Holabird & Roche, was given first place.

From the moment that Grant Park was selected as the location for the new Field Museum, the architecture of all future structures there was determined. The stadium, now nearing completion, is located just south of the museum, and is designed in the Classic Greek style. It is a U-shaped amphitheater, closed in on the south by a semi-circle and so planned that the long axis of the field is in the north and south direction. Monumental porticoes surmount the east and west stands, and the center of the south end is the site of a memorial to the Chicago men who lost their lives in the World War. The Doric columns of the colonnade closely follow those of the portico in the temple of Athena, commonly called the Parthenon. Exhibition halls under the stands are copied after some of the hypostyle halls in Greek temples, the Ionic columns and the doors having been modeled from examples in the Erechtheion. All details throughout the structure are adapted from authoritative Classic Greek sources.

In compliance with the terms of the competition, two requirements were considered of paramount importance: First, that the proposed stadium should in no way conflict with the Field Museum. Second, that the majority of the permanent seats should be centered around a comparatively small area, to afford to the greatest number the best view of such athletic games and similar events as could not be expected to fill the stadium to full capacity. In fulfillment of the first requirement, the architects have considered the Field Museum as the head of the composition, the axis of the stadium being the same as that of the museum. The north end of the arena is left entirely open, affording to the spectators an unobstructed view of the museum. North from the east and west porticoes the permanent seats are entirely below the grade of the esplanade in front of the museum. In this north sector the structure is merely a series of terraces, finishing opposite the end pavilion of the museum in simple sculptured walls



East Stand, Grant Park Stadium, Chicago

and stairways. By this treatment of the north end, conflict with the architecture of the museum is entirely avoided. In the fulfillment of the second paramount condition in the problem, that of seating, the width of the arena is made as small as practical, being 300 feet between walls. The east and west stands, those of chief importance in this solution, are made higher than the north sector to give a larger number of seats in the central part of the stadium. The importance of these stands is emphasized by porticoes, at the center of which a football field is located. The finish of a quarter-mile running track and of a 220-yard straightaway is opposite the reviewing pavilion at the center of the west stand. These two stands combined with the theater seats at the semi-circular south end contain the larger part of the permanent seats, and all are of nearly equal value for most of the events and displays that will be presented in the arena. In order to concentrate the seats around a small area, it was necessary to extend the height of the stand around the small central area to a grade above that of the esplanade at the north. This is justified by the designers because it gives the spectators a better view of all the details of spectacles held in the arena, and because the arrangement permits the north sector to be kept at a low elevation. To aid further in this the circuit of the amphitheater is slightly bowled in order to give the proper lines of sight and, at the same time, to keep the stands as low as possible.

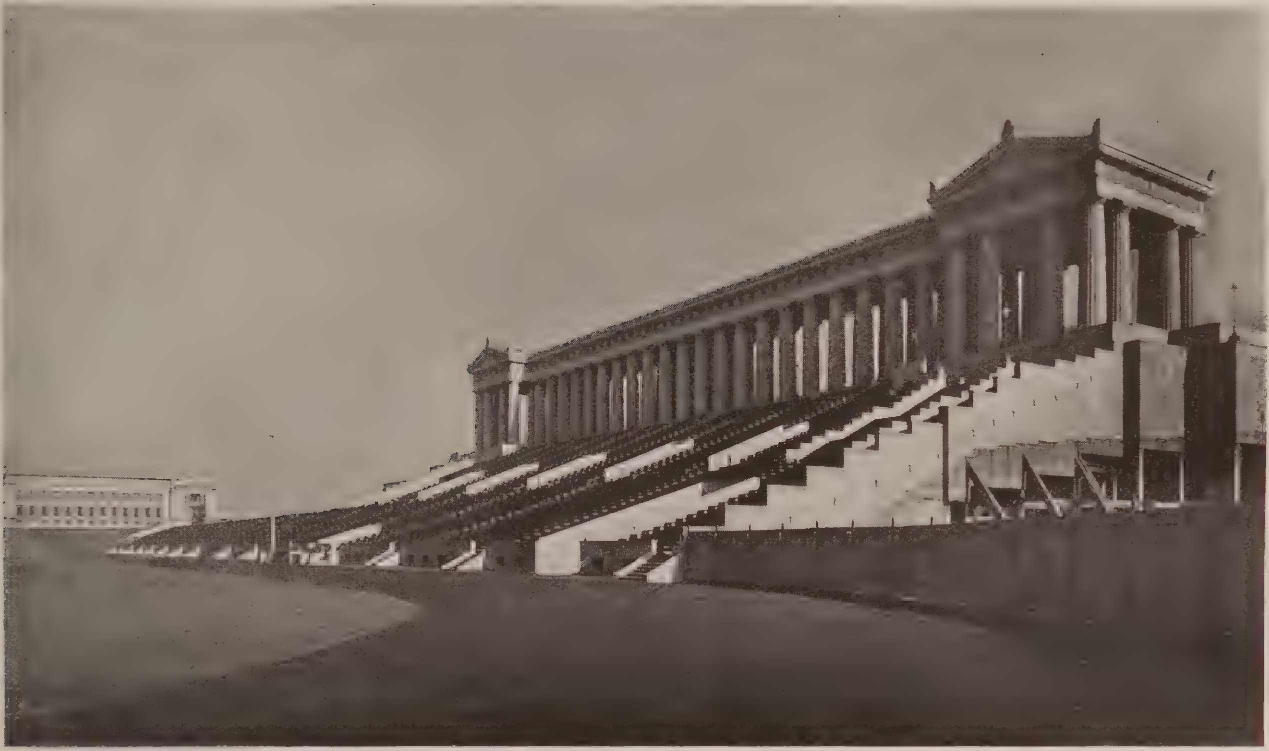
Detail, Grant Park Stadium, Chicago
Holabird & Roche, Architects

The permanent seating capacity of 55,000 includes the main east and west stands, full height; the theater to the south, except the upper terraces; and the section in the north below the esplanade grade. An additional temporary seating capacity of 40,000 is provided for by the use of the upper theater terrace, three terraces north of the main east and west stands, and a portion of the north end of the arena. All the 95,000 seats surround the whole stadium uniformly to the top promenade indicated in the illustration on page 79. Terraces thus form bases for temporary seats, and under this arrangement the seating becomes especially flexible, since any number of terraces may be filled with temporary seats, leaving a finished structure in the event they are not all filled. The terraces also have the advantage of serving as promenades for the spectators and sightseers. A promenade at the grade of the esplanade extends entirely around the stadium. From this promenade, at suitable intervals, extend passageways and ramps leading to the banks of the seats. People may enter at the north end of this level for any of the terrace levels and proceed to the section they are seeking. This promotes convenience of access.

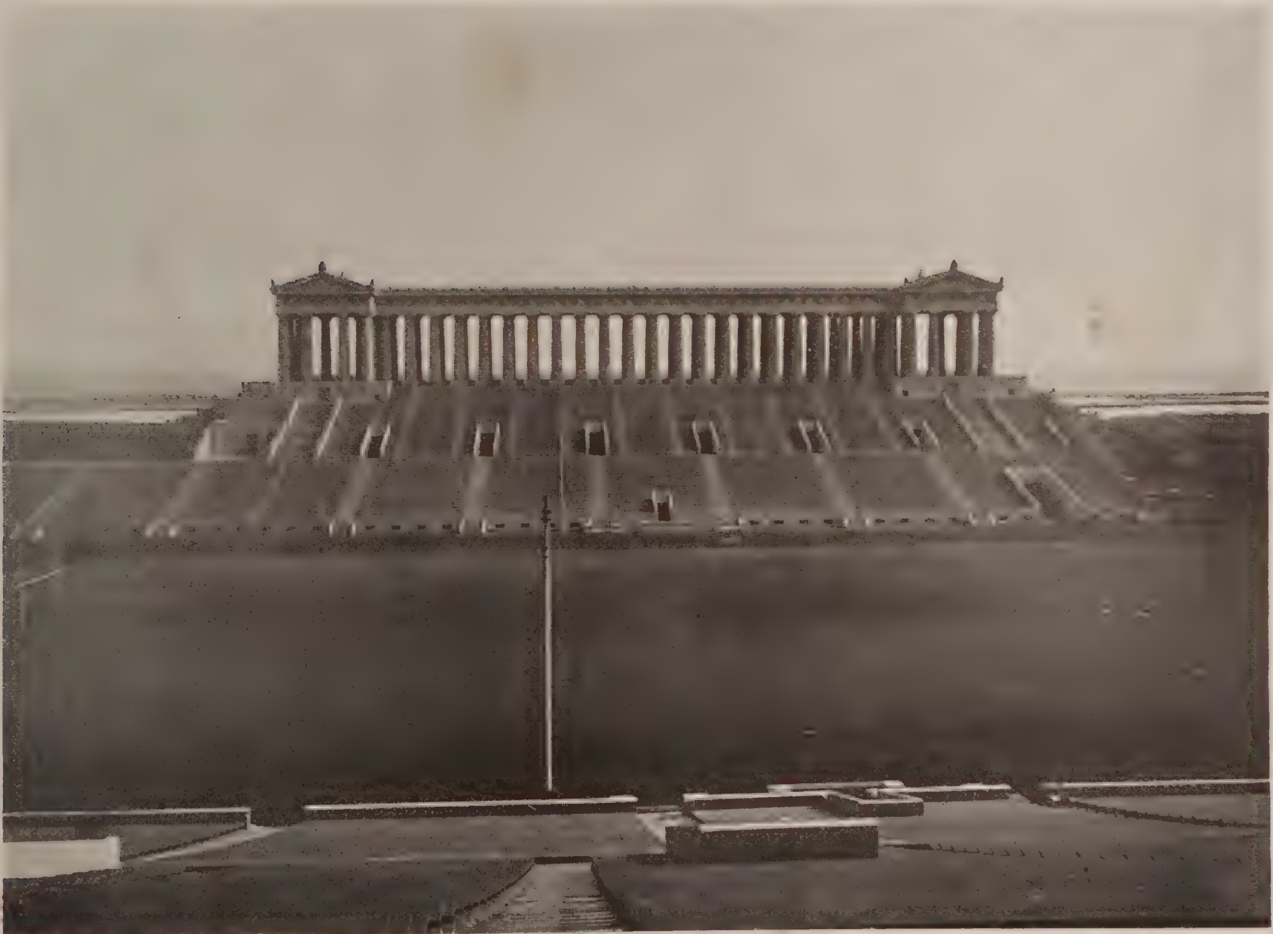
Entrances are provided at appropriate intervals along the exterior of the stadium. These lead through the structure, and by tunnels and ramps to the various banks of seats. Direct access to the upper promenade is furnished by stairways. In addition, all main aisles in the amphitheater lead directly to the arena, where egress is furnished by the entire north end, or by passages south of the main east and west stands.

Pageants and large bodies of troops would enter from the north, pass south by the west reviewing stand, circle the theater with its reviewing stand, and then move north and out again In this way there need be no limit to the number of troops participating or the size of pageants being presented. In addition, two 30-foot passageways from the arena are provided at the south end of the main stands. The superstructure includes a wide promenade, covered on the east and west by two monumental porticoes. Along this promenade sockets are provided for display of flags and bunting, and bases for searchlights are installed.

The space under the main east and west stands and under the theater has been left free from columns. This is divided into three large halls, having approximately 125,000 square feet of floor area and making space available for large automobile, live stock, dairy, industrial and educational or other exhibitions. Temporary booths or stalls may be erected to meet the requirements of the occasion. Although the program includes only heating for accessory rooms, this space could very easily be prepared for any permanent winter uses that may be required, such as all year round swimming baths and gymnasiums, recreation and assembly rooms or a civic concert auditorium, or to fill any other future need.



VIEW OF THE NORTH STAND SHOWING FIELD MUSEUM AT THE LEFT

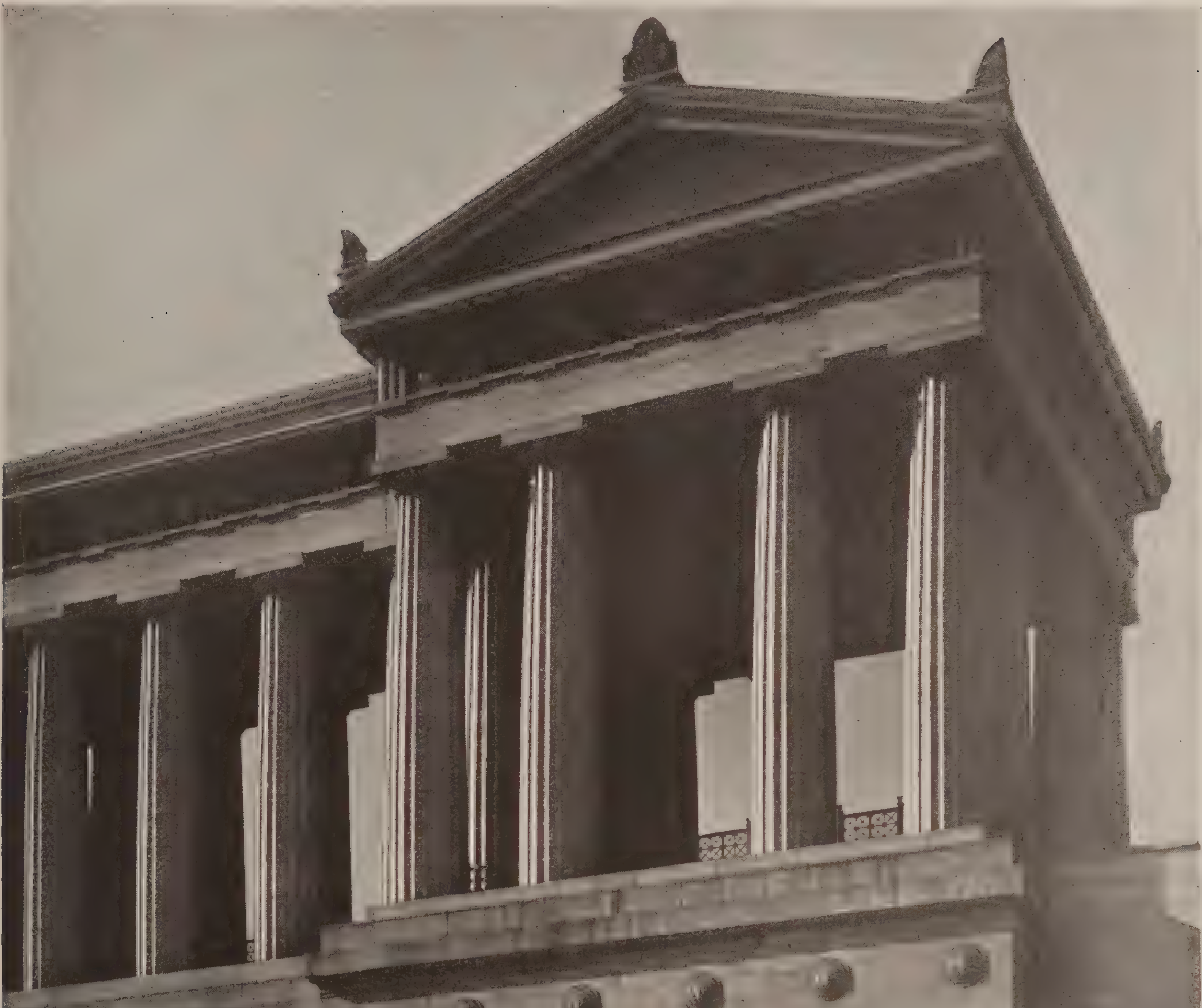


Photos. Trowbridge

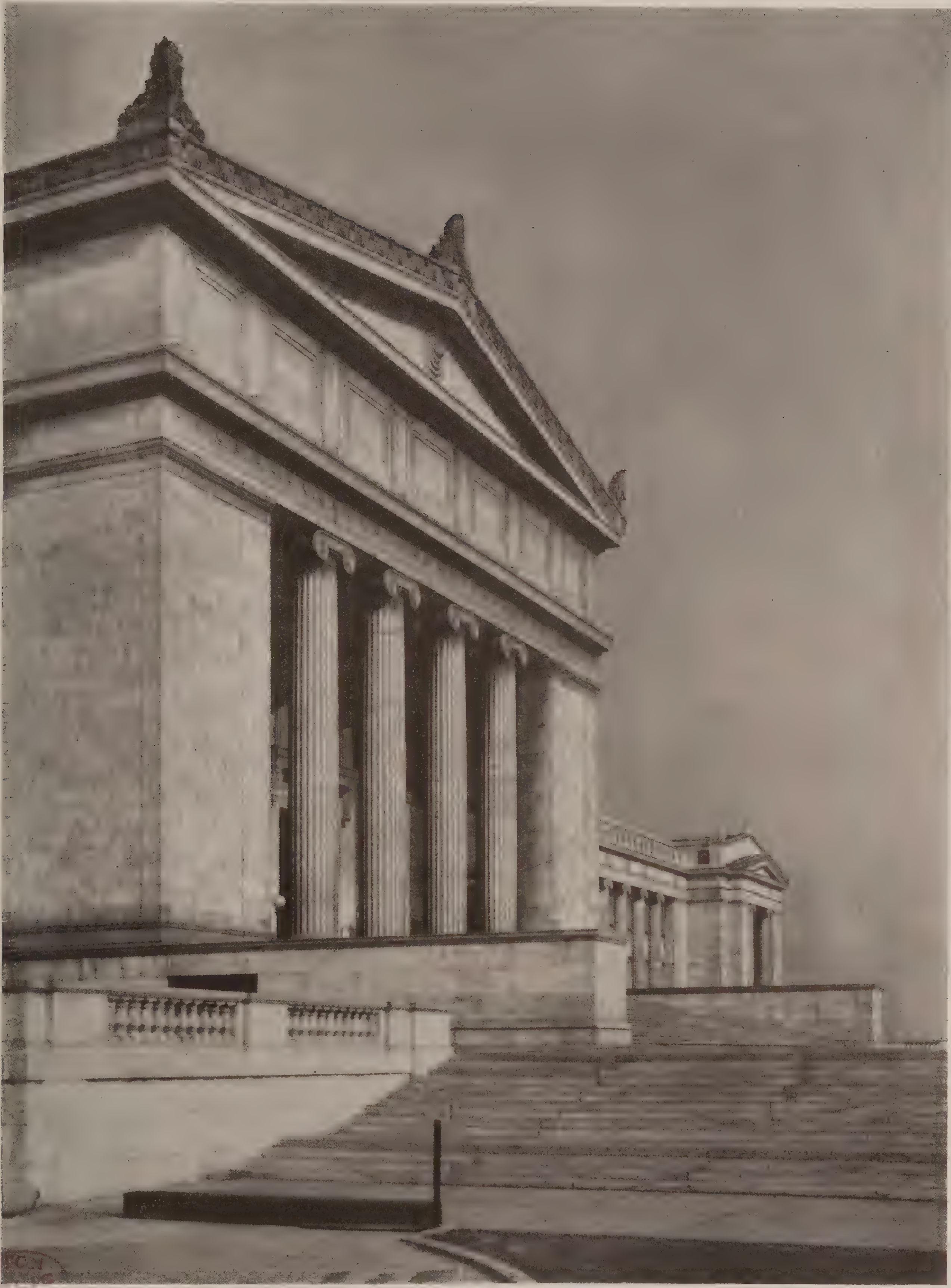
VIEW FROM THE OPPOSITE STAND ACROSS THE FOOTBALL FIELD

GRANT PARK STADIUM, CHICAGO

HOLABIRD & ROCHE, ARCHITECTS

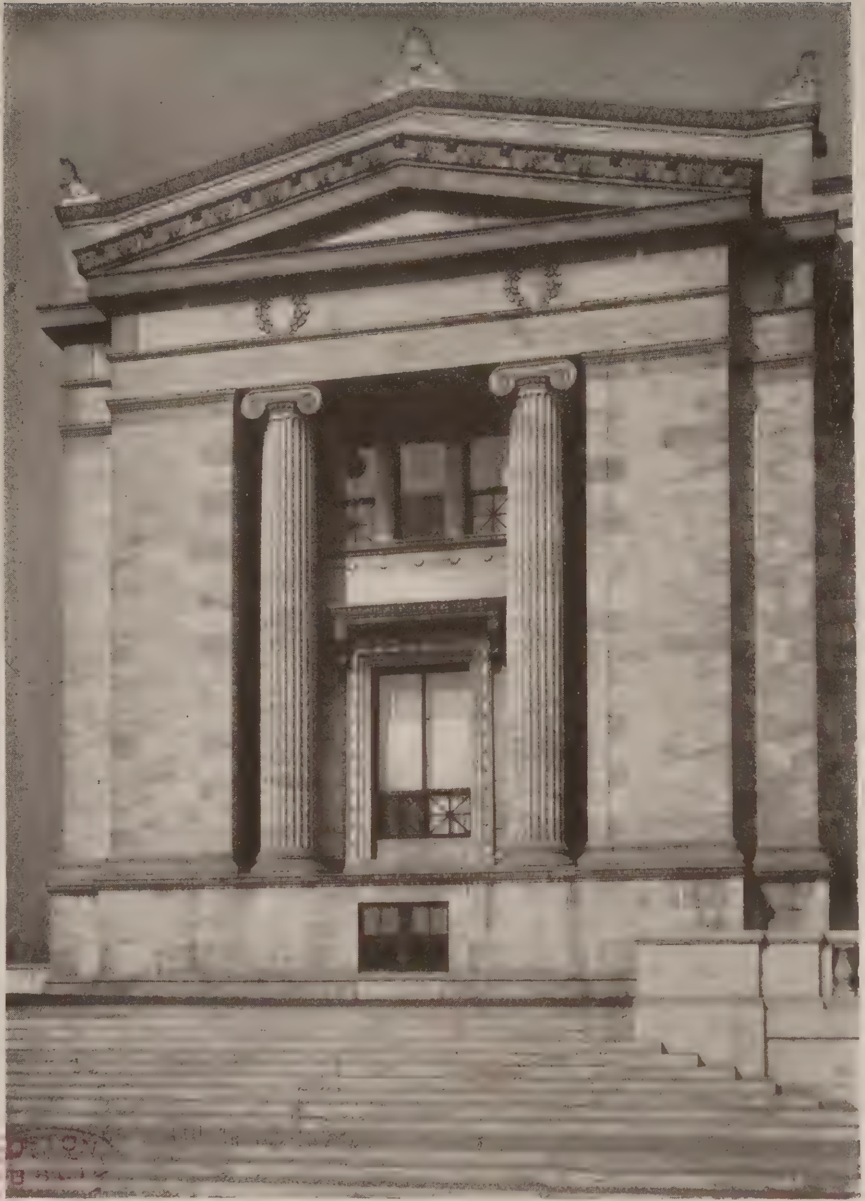


EXTERIOR DETAIL SHOWING ENTRANCES
GRANT PARK STADIUM, CHICAGO
HOLABIRD & ROCHE, ARCHITECTS

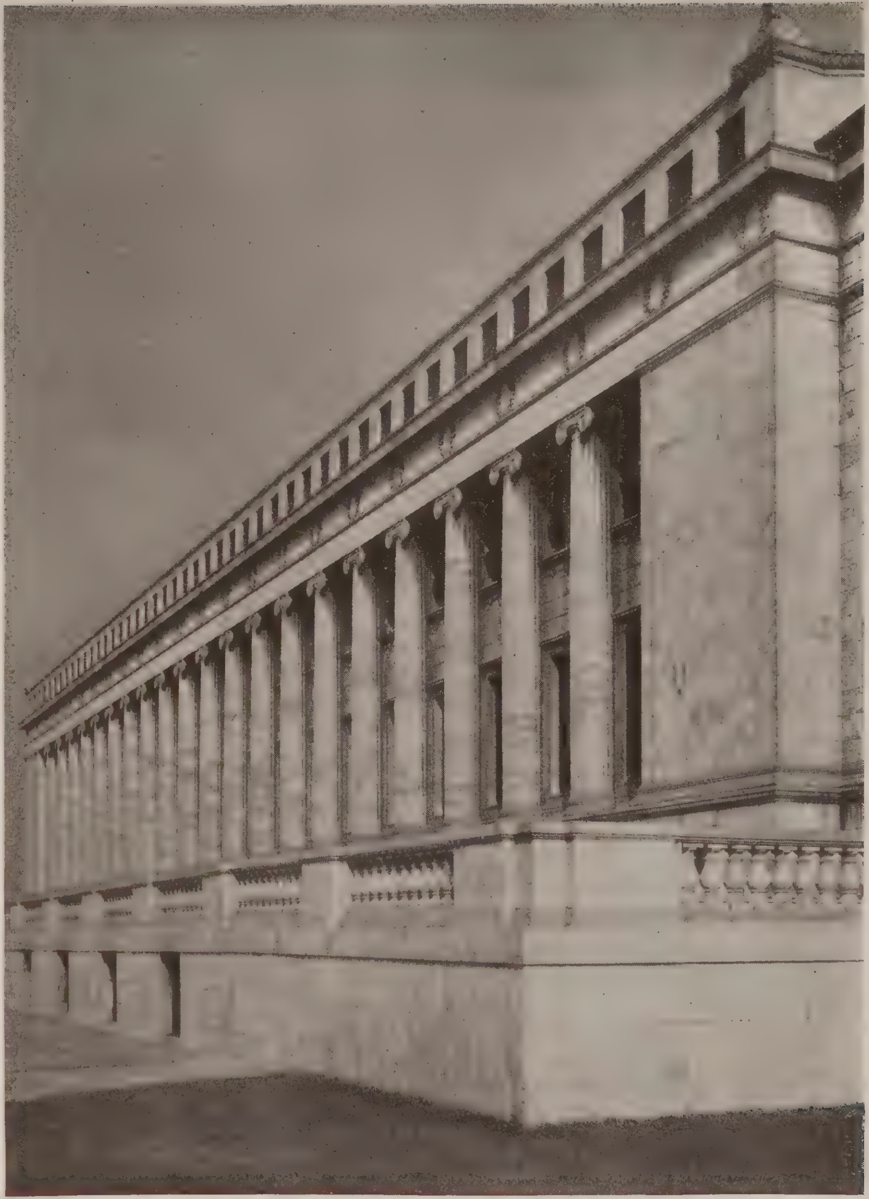


Photos: Tebbs & Knell, Inc.

DETAIL OF MAIN ENTRANCE
FIELD MUSEUM OF NATURAL HISTORY, CHICAGO
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

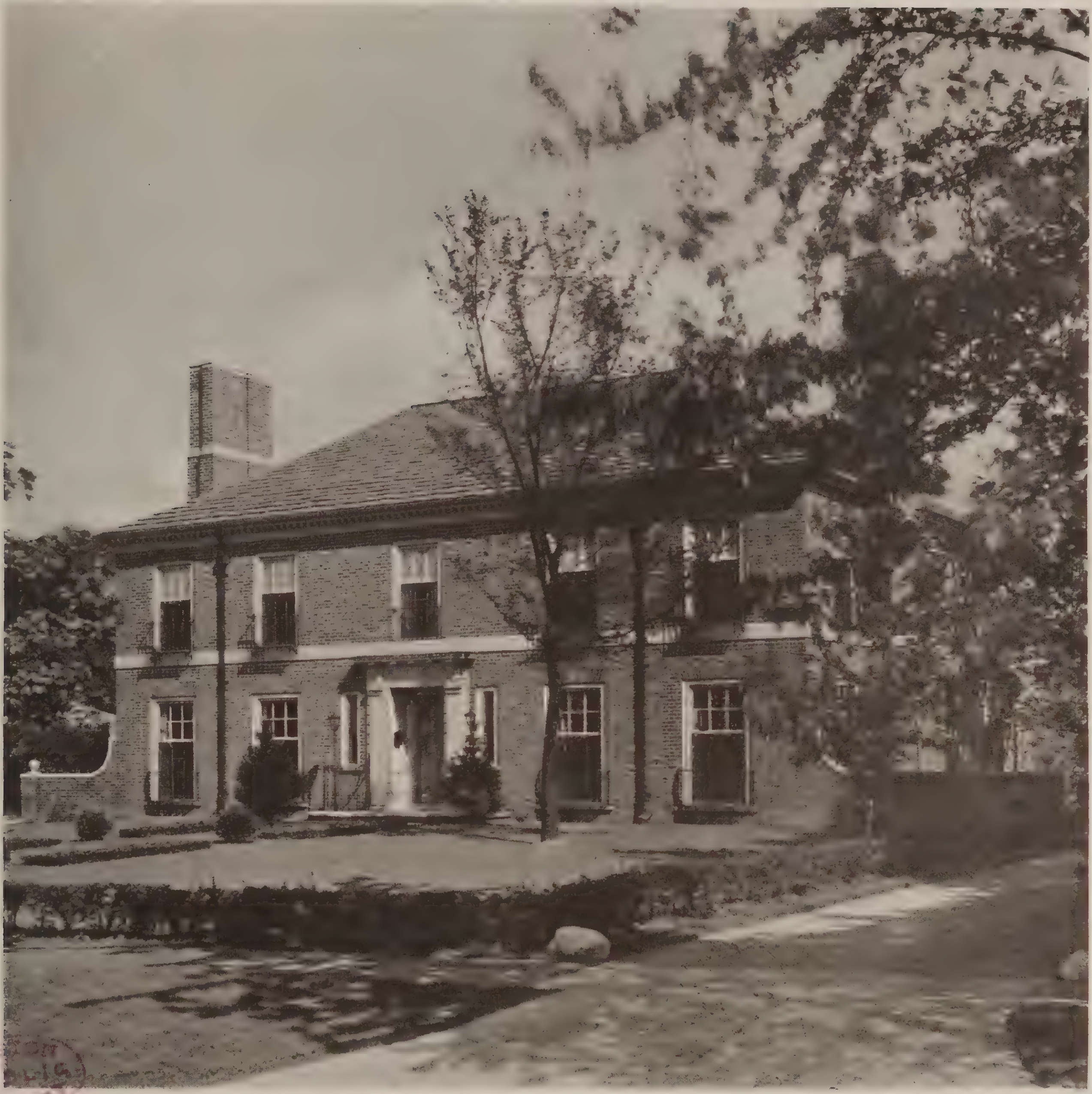


DETAIL OF END BAY

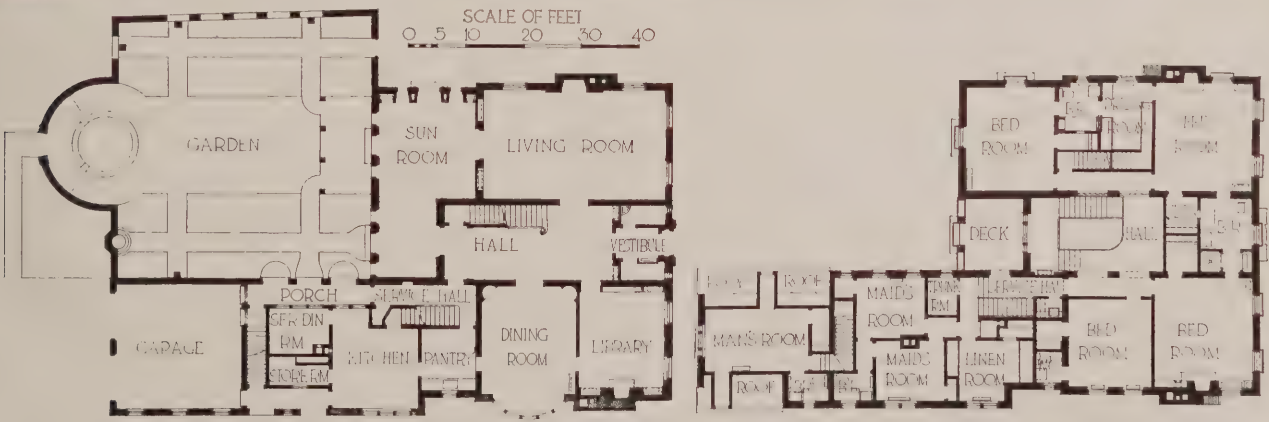


END ELEVATION

FIELD MUSEUM OF NATURAL HISTORY, CHICAGO
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



ENTRANCE FACADE FROM THE STREET

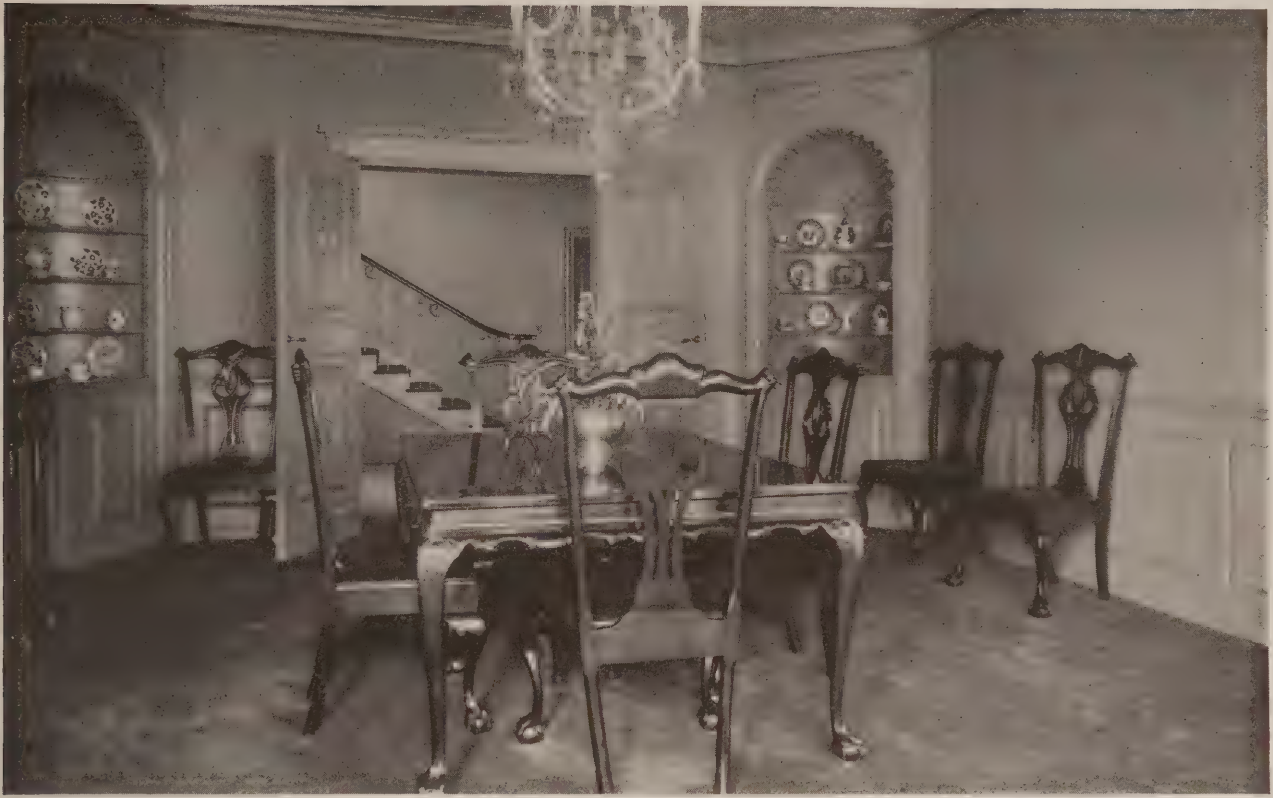


FIRST FLOOR

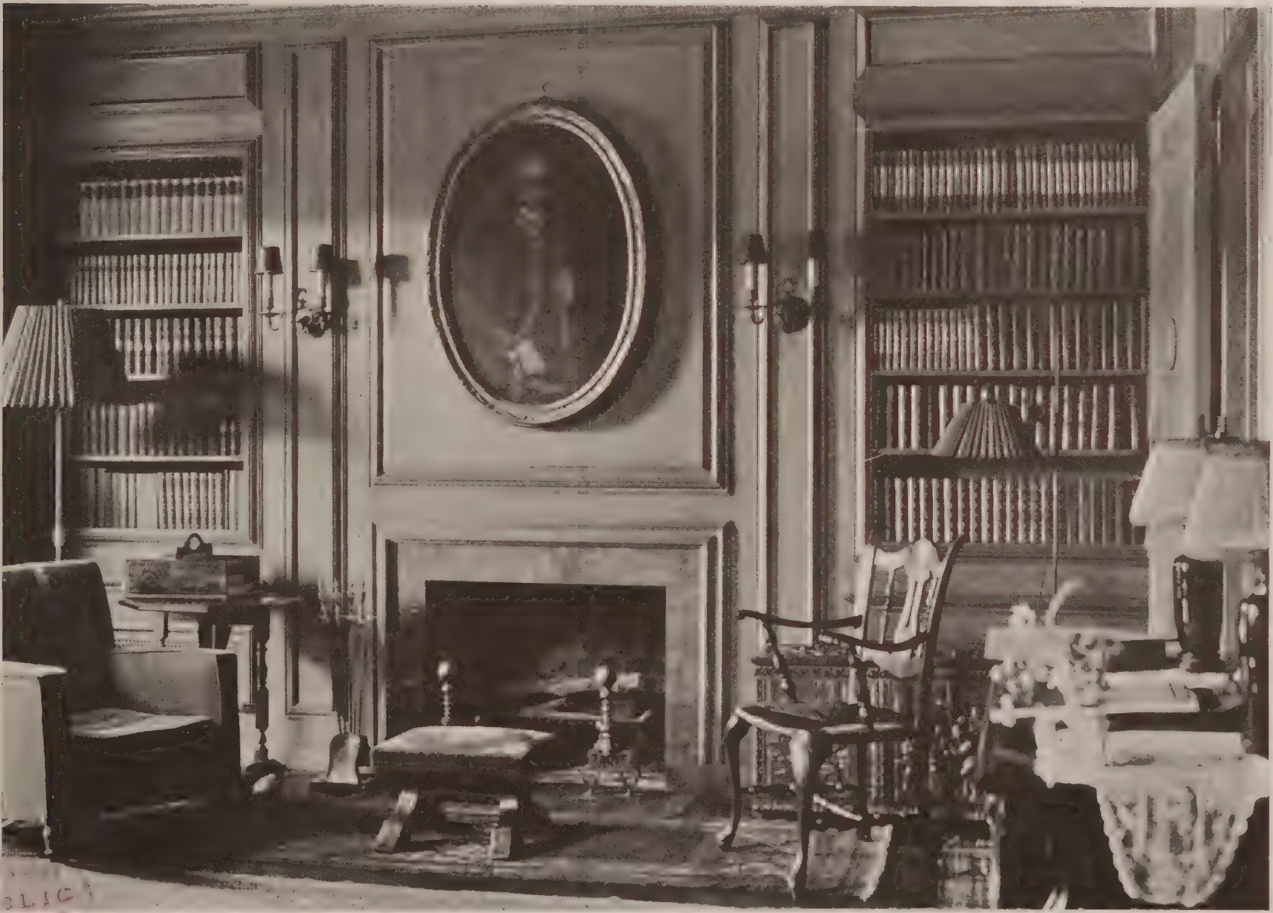
SECOND FLOOR

HOUSE OF ERNEST S. BARKWILL, ESQ., CLEVELAND

CHARLES S. SCHNEIDER, ARCHITECT



DINING ROOM



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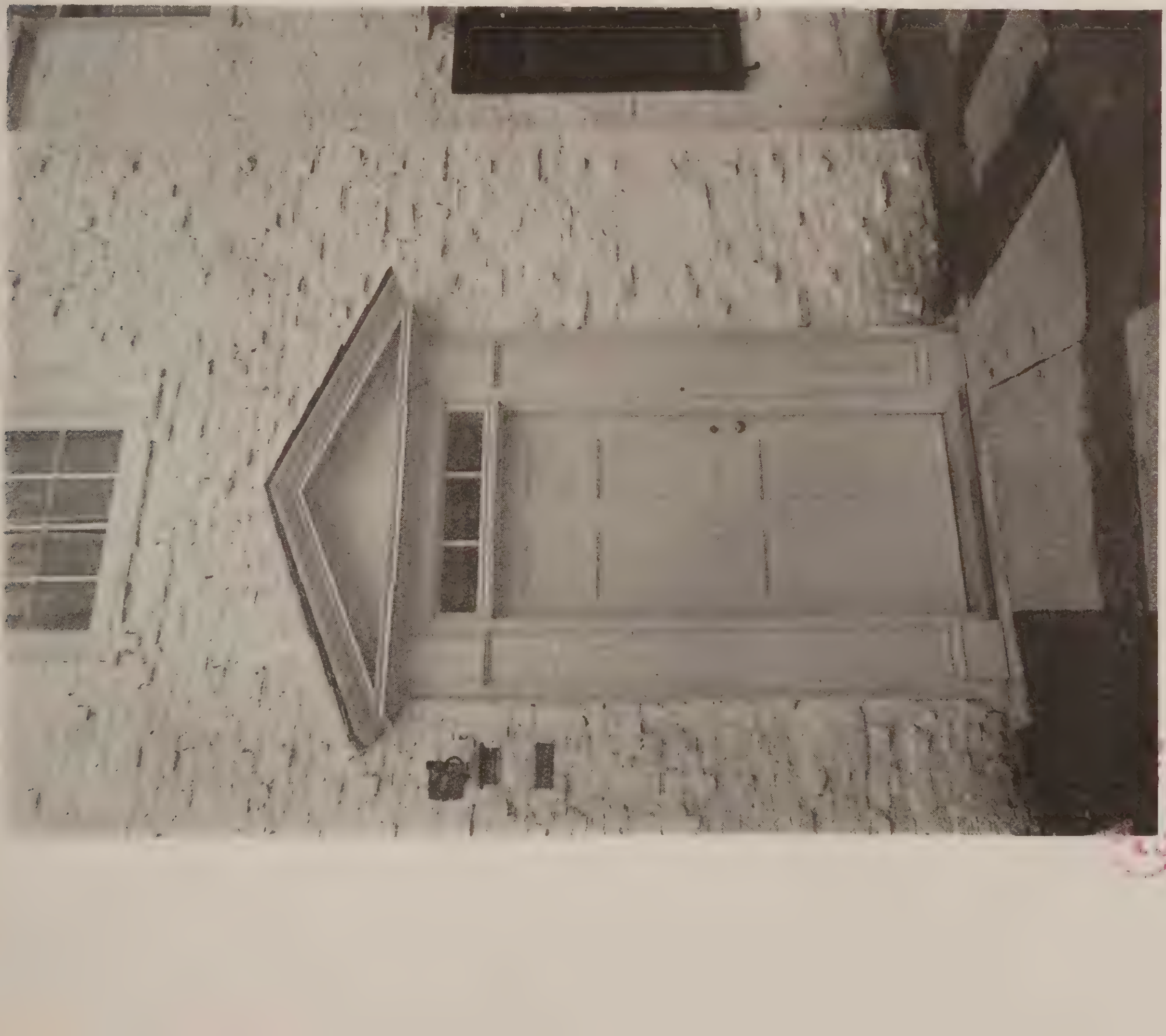
Photos. Tebbs & Knell, Inc.

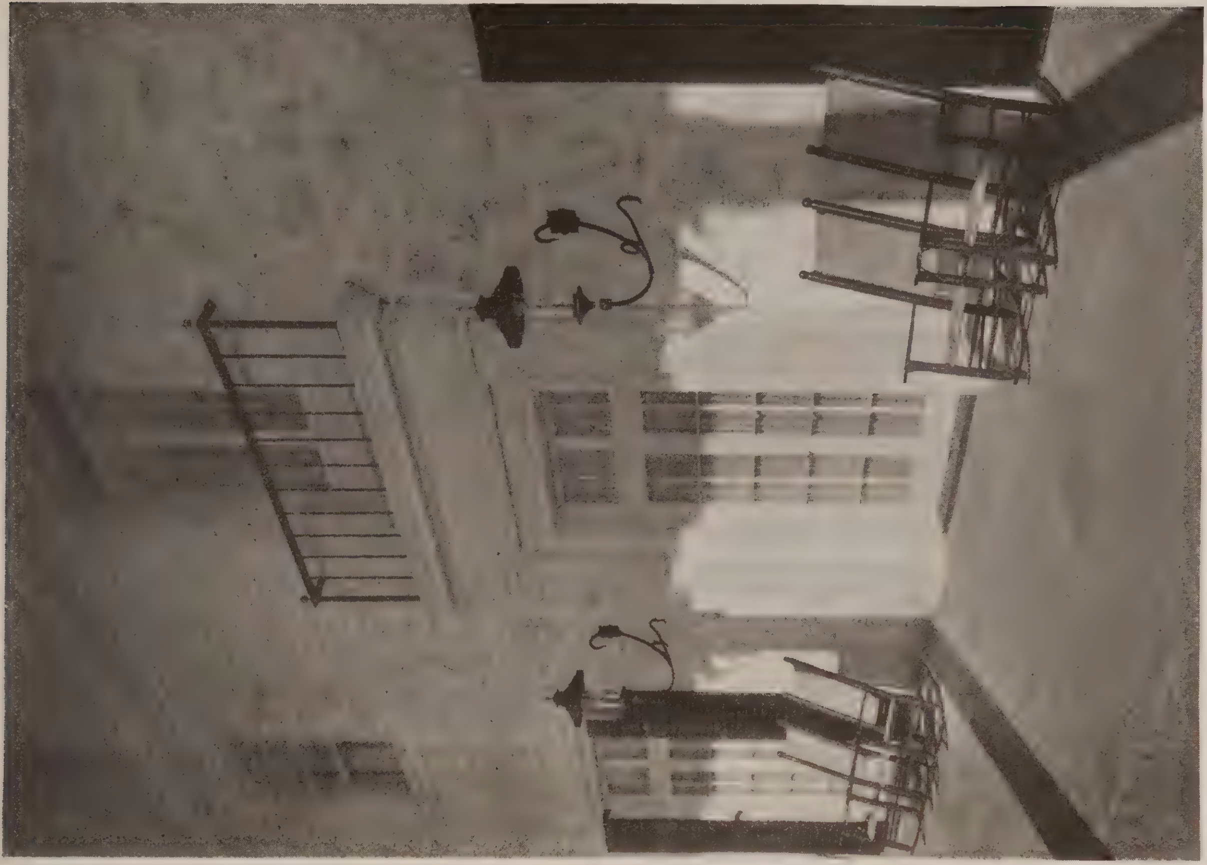
DETAIL OF LIBRARY

HOUSE OF ERNEST S. BARKWILL, ESQ., CLEVELAND

CHARLES S. SCHNEIDER, ARCHITECT



DETAIL OF SIDE ENTRANCE DOOR

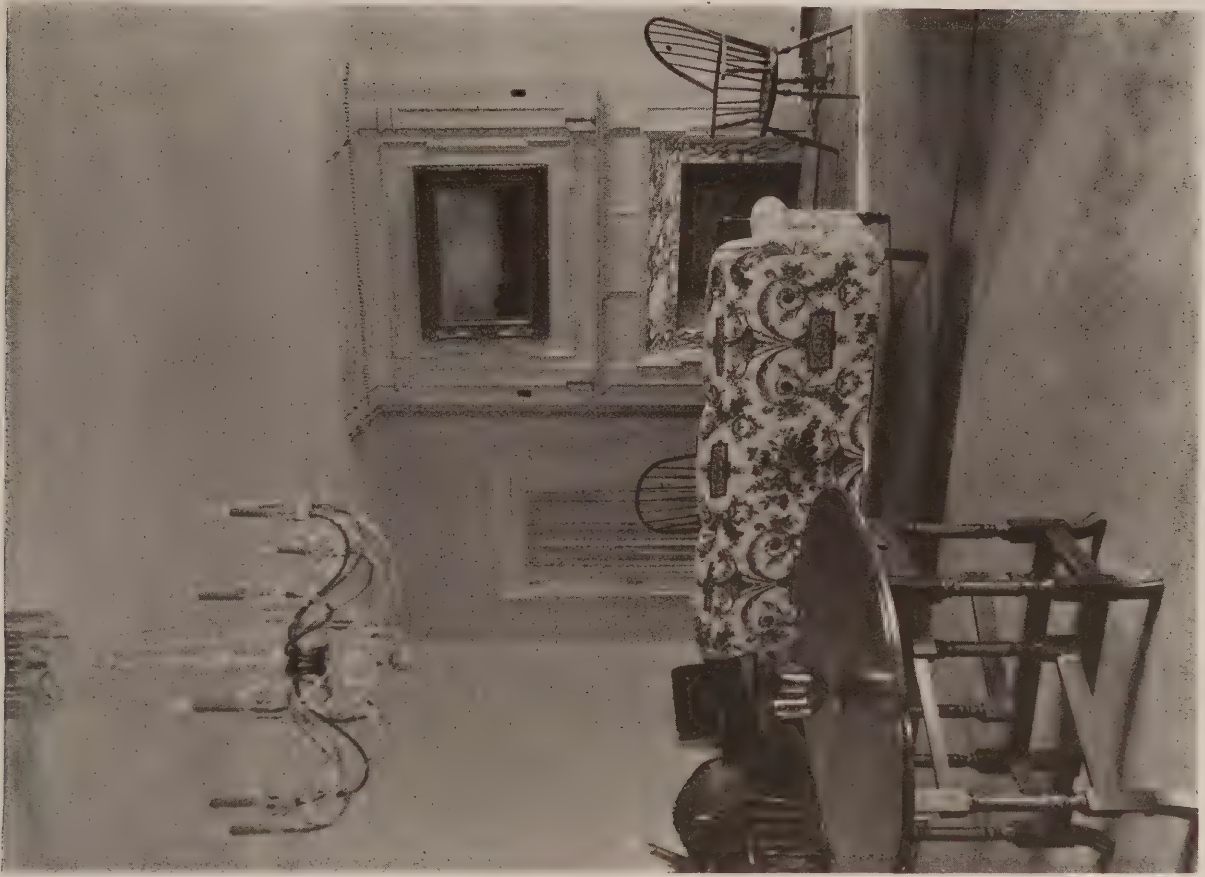


DETAIL OF LIVING PORCH

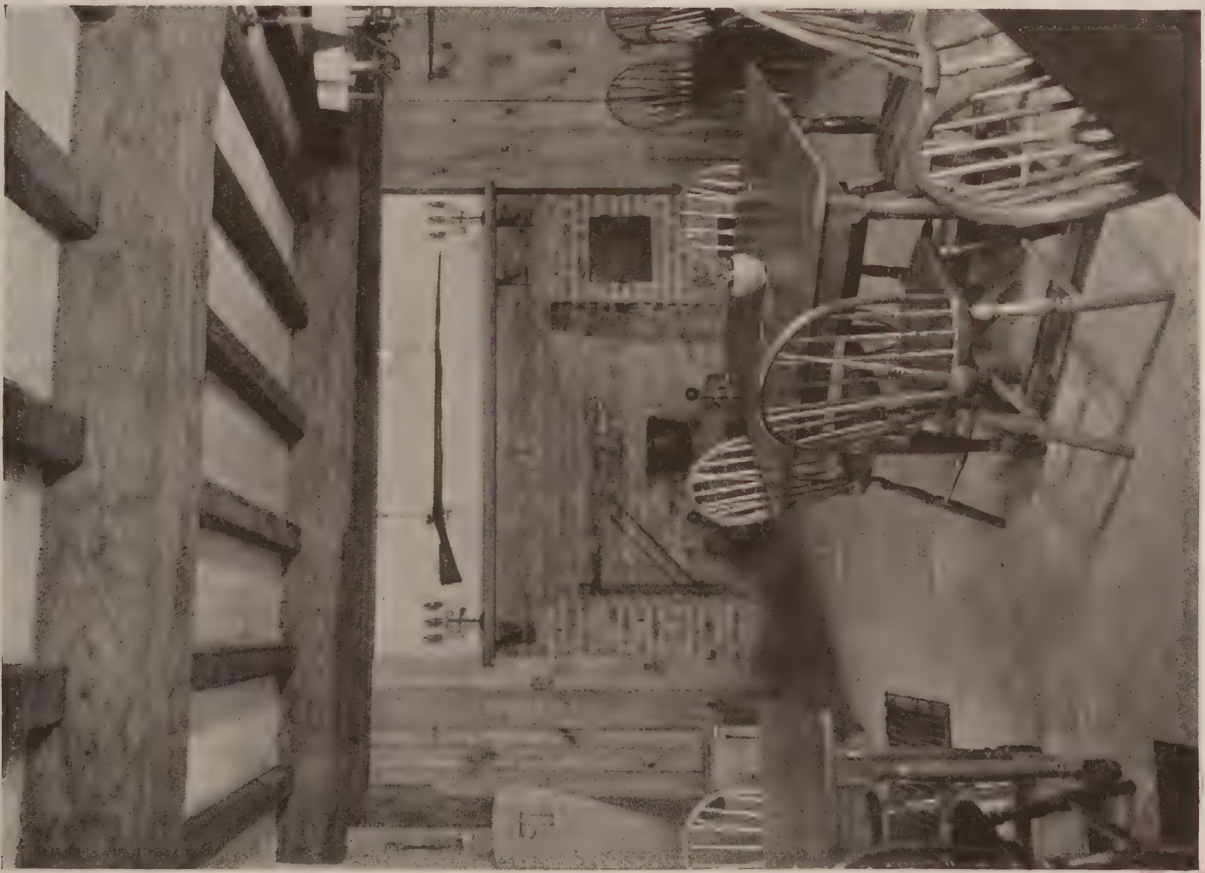
PRINCETON INN, PRINCETON, NEW JERSEY

ANDREW J. THOMAS, ARCHITECT

Photos. George H. Van Anda



DETAIL OF LIVING ROOM



THE TAP ROOM

PRINCETON INN, PRINCETON, NEW JERSEY
ANDREW J. THOMAS, ARCHITECT

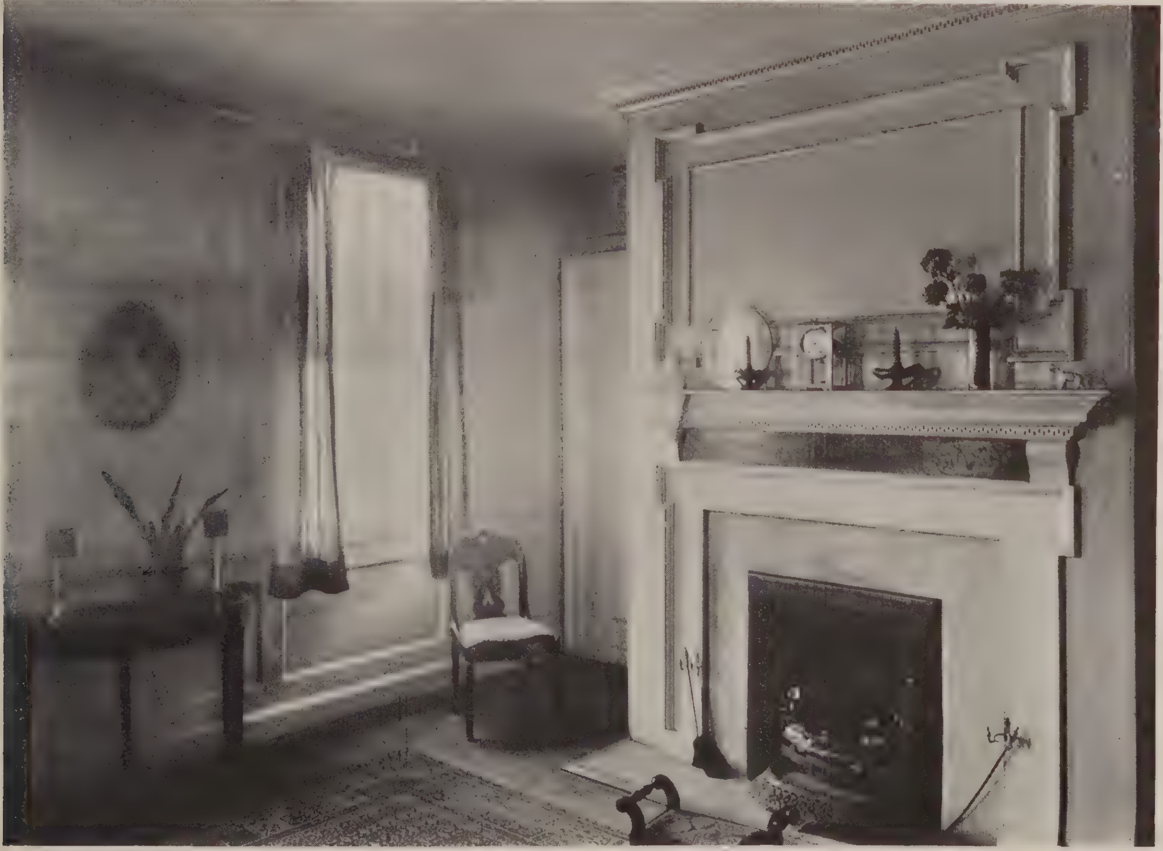
Some Minor Charleston Houses

By ALBERT SIMONS

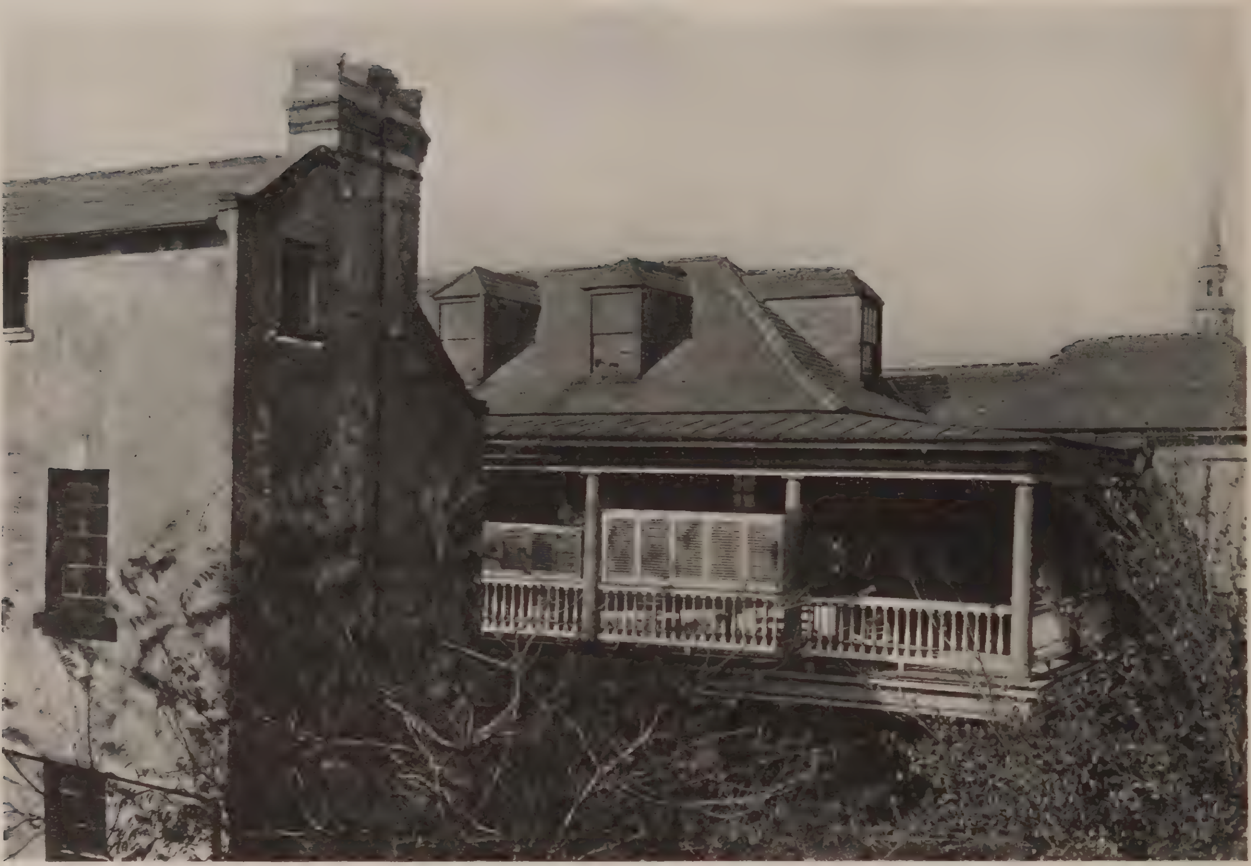
THE larger of the early Charleston houses have from time to time been measured, photographed, sketched and written up so much that not a few of them have become accepted classics of early American architecture, and, as with many classics, much of their appeal has become staled by too frequent repetition. Besides these well known and accepted types there are many smaller houses of considerable age, admirably built, and designed with a very apparent appreciation for mass, proportion, and picturesque grouping, all of which gives them much greater genuine charm than more correct and formal composition.

It is much to be regretted that many of these buildings, though irreproachably genteel in their heydey, have become in the passing of time surrounded by unsavory neighbors, and have slipped beyond the pale of decent habitation. Sometimes the unfortunates have been "reclaimed" by enterprising promoters, but, like many another engaging reprobate, they become stupidly banal when they assume smug respectability. To the painter, etcher or architect they are far more worth while in their unregenerate state, before their gay walls of Naples yellow and turquoise are made mournful with new paint,—penitential gray and soul-sick brown,—and before their simple doorways become encumbered by pseudo "Colonial entrances," poor copies of good originals, perhaps in Germantown or Providence.

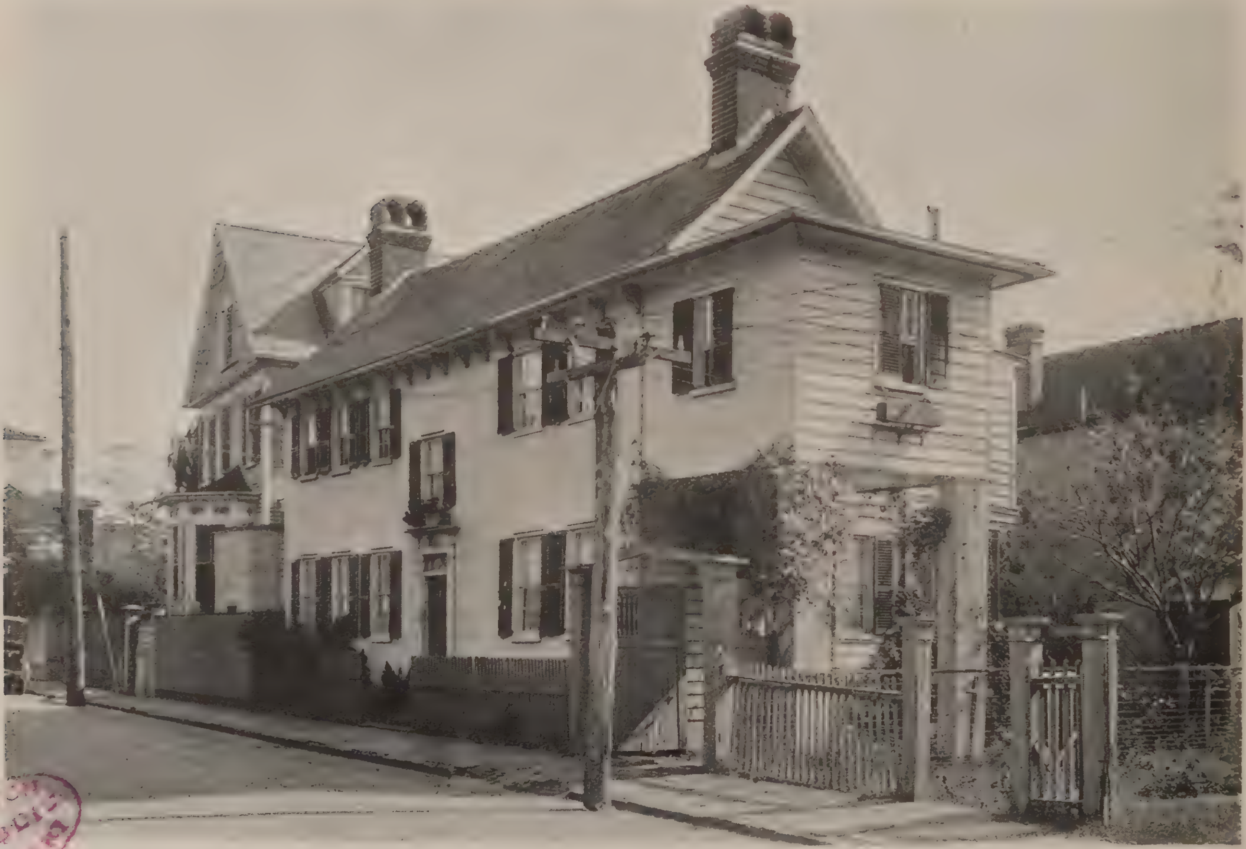
Some of these little houses have had the good fortune always to have been surrounded by congenial neighbors, so that they have never lost caste but have always been properly cared for by their owners, and have never suffered the indignities of radical and ill-advised "improvement." Among these well preserved houses perhaps one of the earliest is the frame dwelling at 60 Church Street. It is not known definitely when this house was built, but by comparing its character with that of larger houses whose dates are known it would seem to belong to that prosperous epoch in the history of the colony between 1760 and 1775. The most interesting feature of this house is the extensive use of mahogany for its interior finish. The door and window sills, as well as the sash, and all of the paneling and trim on the first floor are of this fine hardwood. All of it has long ago been painted over, the usual ivory tint, except a very beautifully inlaid frieze in the mantel of the drawing room. The writer can recall several other old houses where thick mahogany planks have been used for door sills. In one particular instance, when an old house was demolished, the mahogany sills were salvaged and were used quite successfully for cabinet work, after exposure



Mahogany Drawing Room at 60 Church Street



ROOFS AT 114 AND 116 CHURCH STREET



7 GIBBES STREET; CORNICE, BRACKETS AND EXTENSION ARE LATER ADDITIONS

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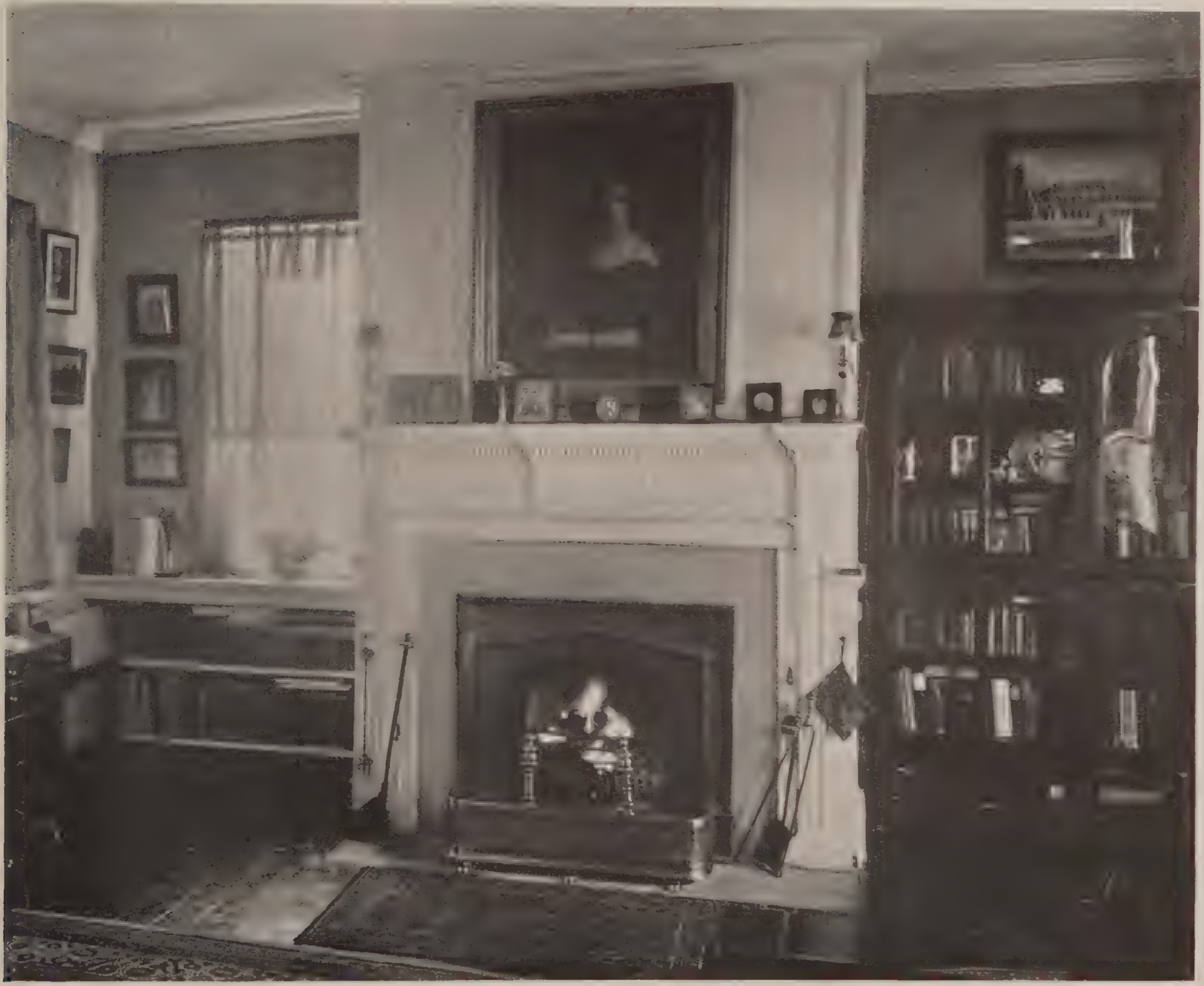
to the weather for considerably more than a century.

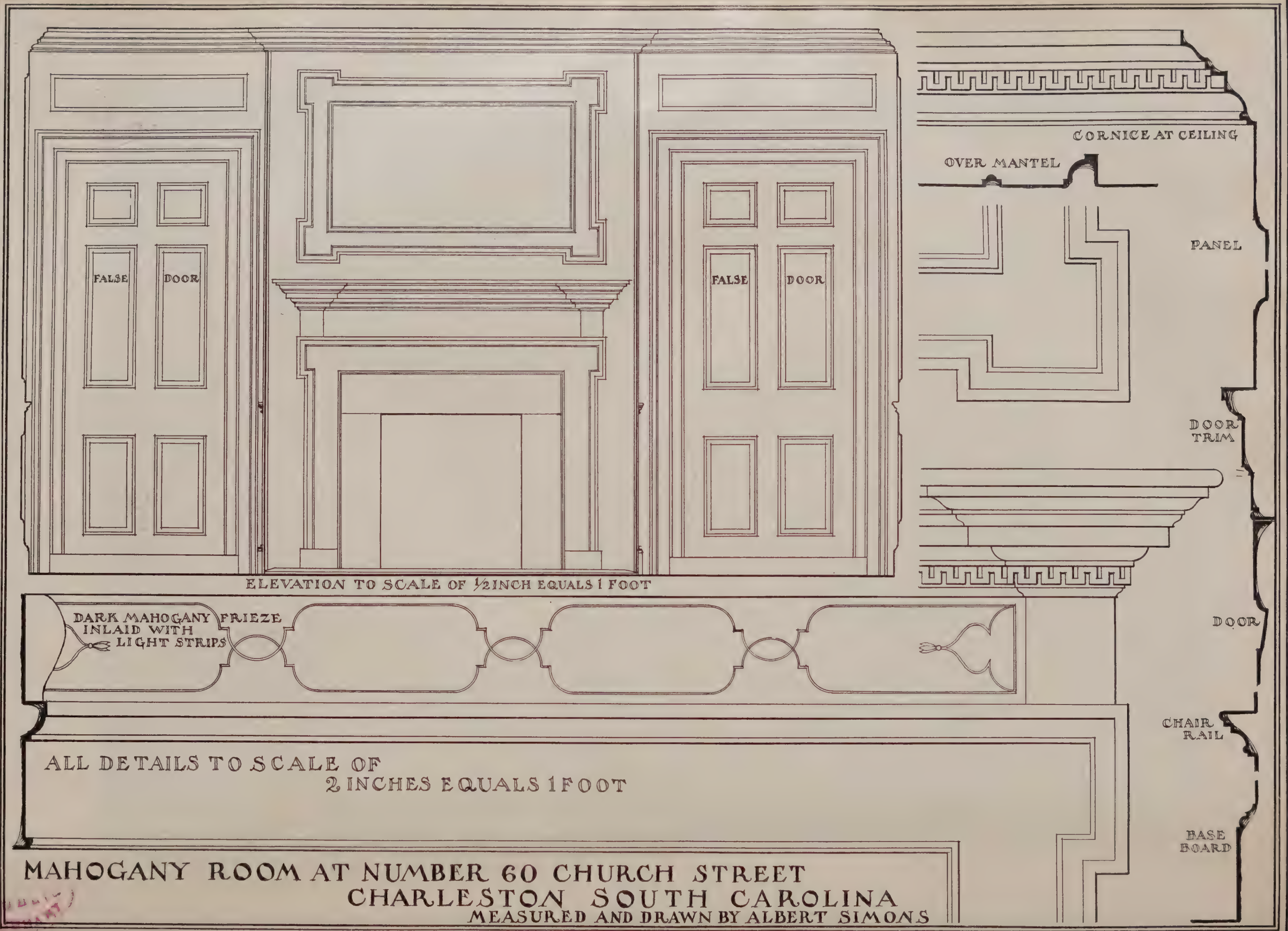
At 7 Gibbes Street is another small frame house that has managed to keep its station in the world. It was built some time between 1804 and 1811 by an Englishman by the name of John Harf, who ran a shipyard on the river front, adjoining the house. The framing timbers are unusually massive and staunch for such a small building, and are hand hewn, not sawed. The weatherboarding on the front is put on with very close flush joints, more like the side of a ship than the usual lapped way in which most siding is applied to a dwelling. It is therefore not unlikely that this house was built by Harf's shipwrights when they were not working on his clipper ships, and built also according to nautical methods.

Another house, probably of about the same period, is that at 8 Atlantic Street. It is a rather reticent house, of very thick brick walls covered with stucco. Its severity is relieved by a wooden balcony under the windows of the second story. The use of stucco composed of burnt oyster shell lime and river sand seems to have been resorted to from earliest times, probably to dampproof the brick walls, to which the interior plastering was applied directly, without furring or lathing. These stucco walls were frequently tinted with cold water wash of very beautiful pastel shades. After several successive washes of different hues, the walls eventually acquired a vivacity of color, as though they had been decorated with sgraffito work. Sometimes, however, ambitious but ill-advised master painters have attempted to cover these stucco walls with oil paint, which soon curls up and peels off, giving the poor building a most leprous appearance. To the house at 8 Atlantic Street there is a legend attached that it was in this building that Osceola, the famous Seminole chief, was confined for a time before he was imprisoned in Fort Moultrie, and that he not infrequently startled the neighbors by war whoops at unexpected moments. Charleston is full of historic associations.

Across the street at 3 Atlantic Street stands a frame building, erected probably some time after 1830. This house also is very restrained in its simplicity, but its delicacy of scale is well sustained throughout. As in most of these houses, the chimney stacks are large, to admit of great log-burning fireplaces and flues ample enough for the free passage of a sizeable chimney-sweep, as the old city ordinance requiring all chimneys to be swept at frequent intervals was rigidly enforced. In almost all instances these large open fireplaces have been partially filled in order to accommodate the smaller coal-burning

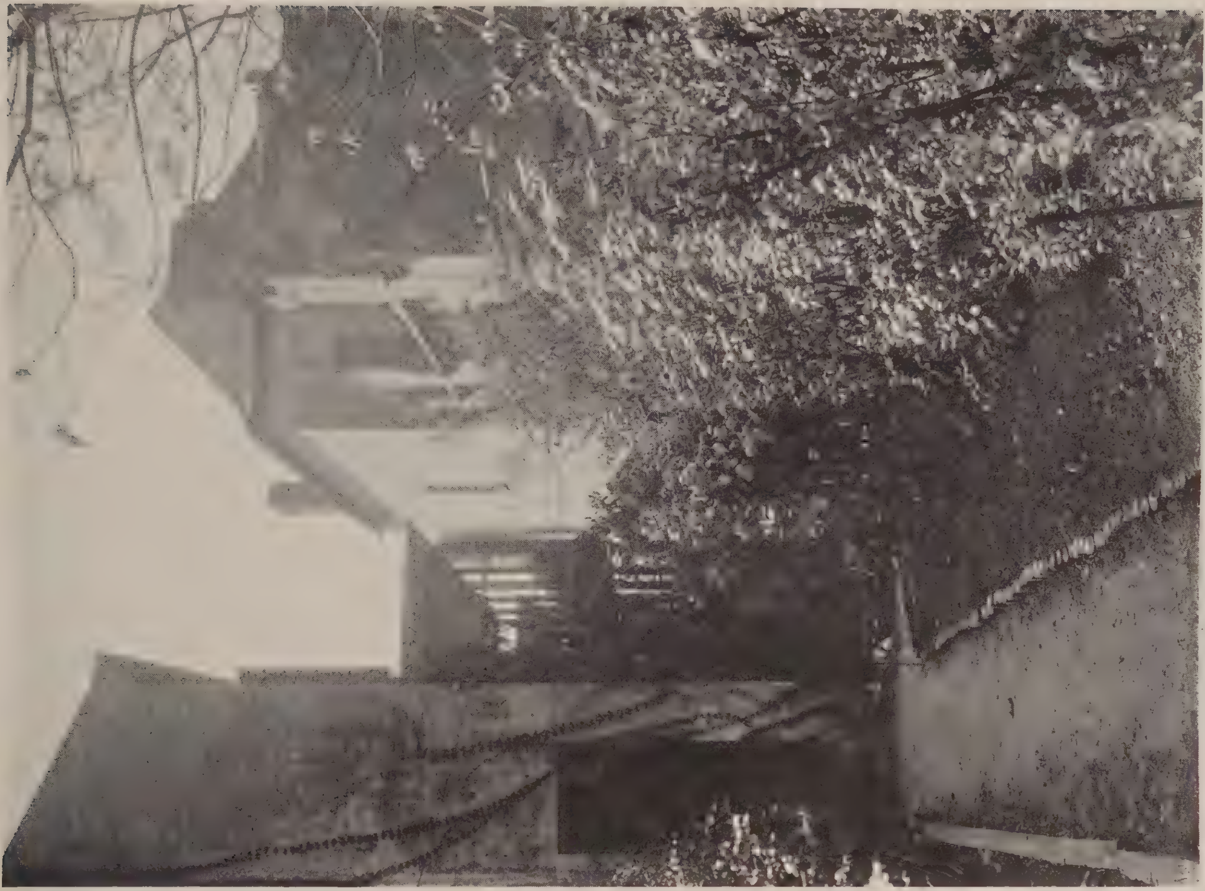


Drawing Room at 7 Gibbes Street

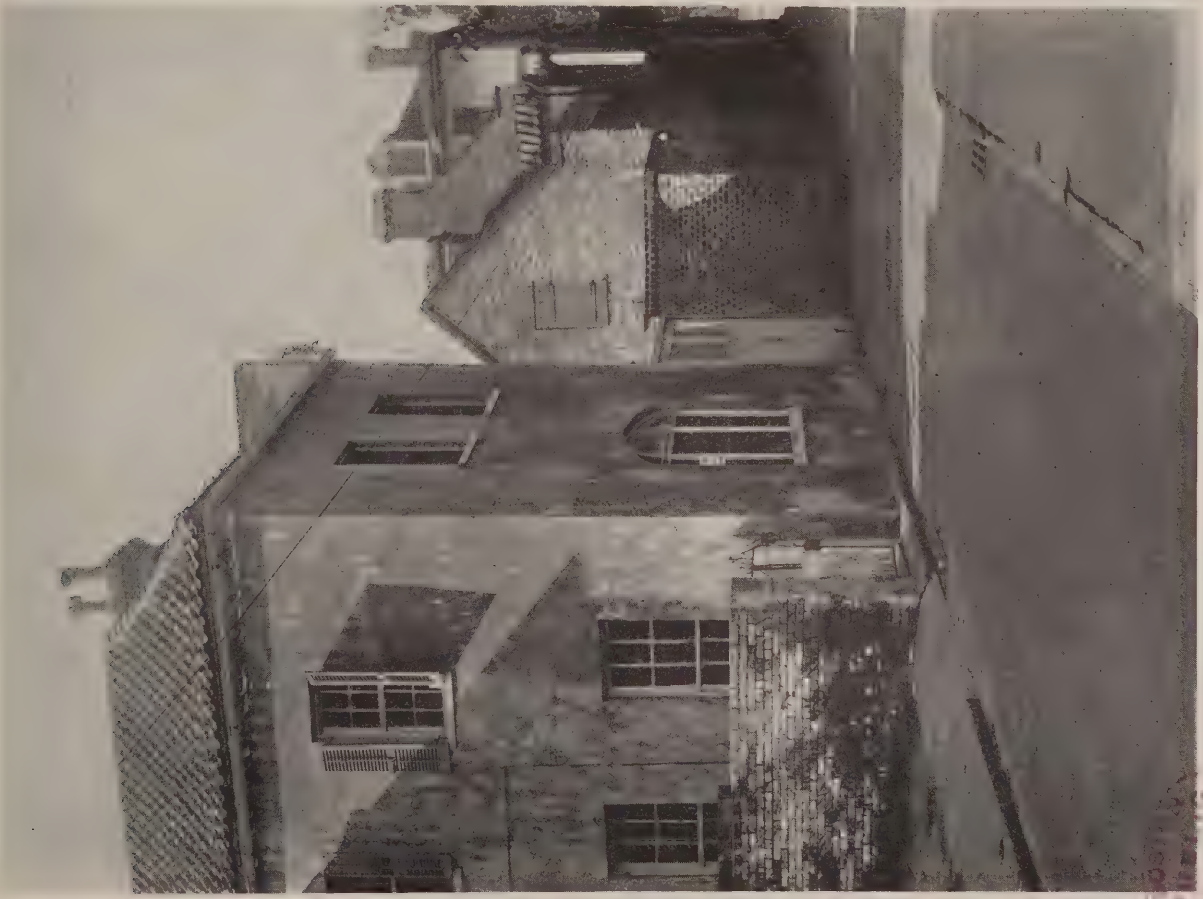

FALSE
DOOR
FALSE
DOOR
ELEVATION TO SCALE OF ½ INCH EQUALS 1 FOOT
DARK MAHOGANY FRIEZE INLAID WITH LIGHT STRIPS
CORNICE AT CEILING
OVER MANTEL
PANEL
DOOR TRIM
DOOR
CHAIR RAIL
BASE BOARD
ALL DETAILS TO SCALE OF 2 INCHES EQUALS 1 FOOT

MAHOGANY ROOM AT NUMBER 60 CHURCH STREET
CHARLESTON SOUTH CAROLINA

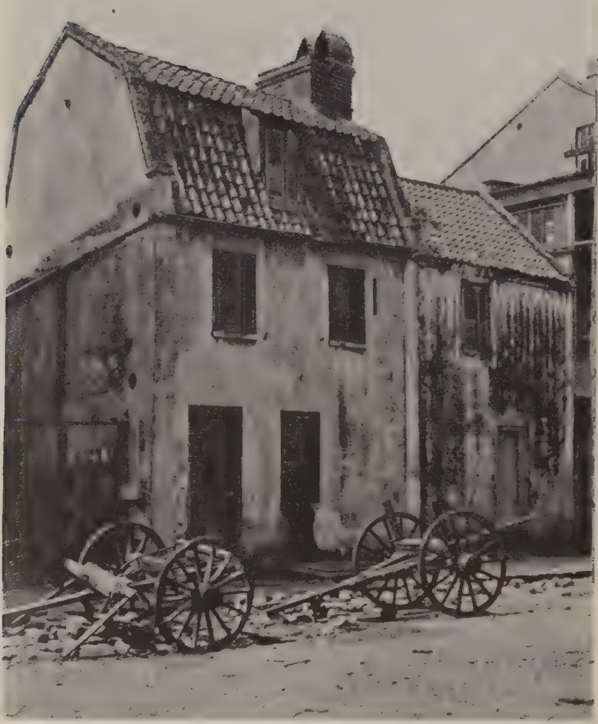
MEASURED AND DRAWN BY ALBERT SIMONS



GARDEN OF HOUSE AT 56 TRADD STREET



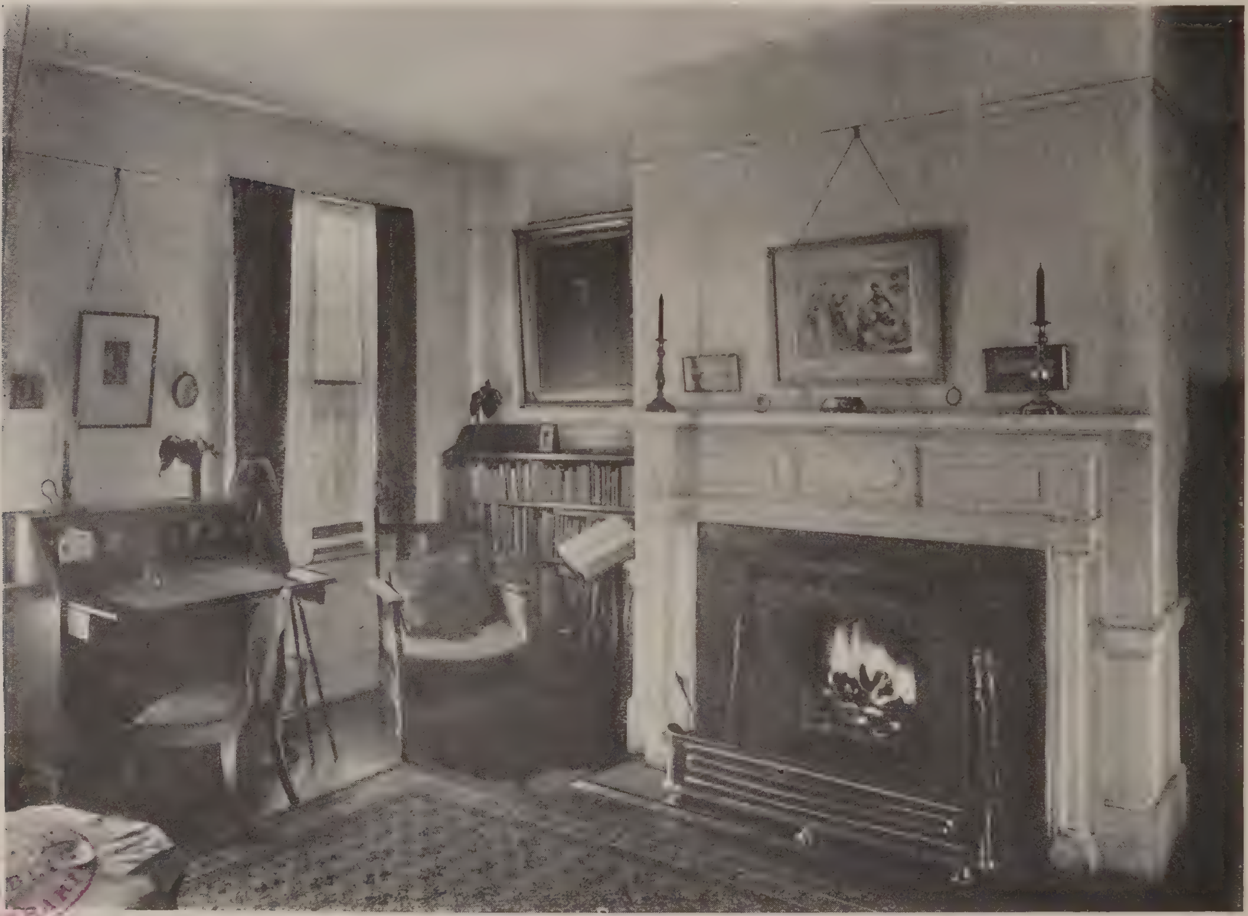
GROUP OF OLD HOUSES IN ST. MICHAEL'S PLACE



House with Gambrel Roof in Chalmers Street

grates, but the great chimney stacks have served as staunch lateral braces for many a house against the fury of West Indian hurricanes.

While the street frontages of these houses are often quite narrow, the lots are often very deep, with a series of additions, kitchen buildings and servants' quarters, receding in a long drawn perspective closed by a garden where fig trees, magnolias, and oleanders checker the walls with light and shade. Seen from the garden these accumulations of buildings are most picturesque, and have a frankness of functional expression that seems to hark back to mediæval times. Especially is this true of the intersections of roofs and the placing of chimneys and dormers. Most of the roofs have a comparatively steep pitch, a one-half pitch being the most usual. This steep pitch shows adherence, of course, to the building tradition derived from England, the Netherlands, and northern France, whence the early settlers came. Though there is no snow to be considered here, these steep roofs are admirably suited for shedding the torrential rains that visit this coast in summer. It will be noted that the pitch of these roofs becomes perceptibly less steep along the eaves, so that the roof forms a graceful concave curve, or "bell cast," as it meets the top of the wall. The roof tiles are salmon pink with fire-glazed patches of dark purple. In shape they are the same as those com-

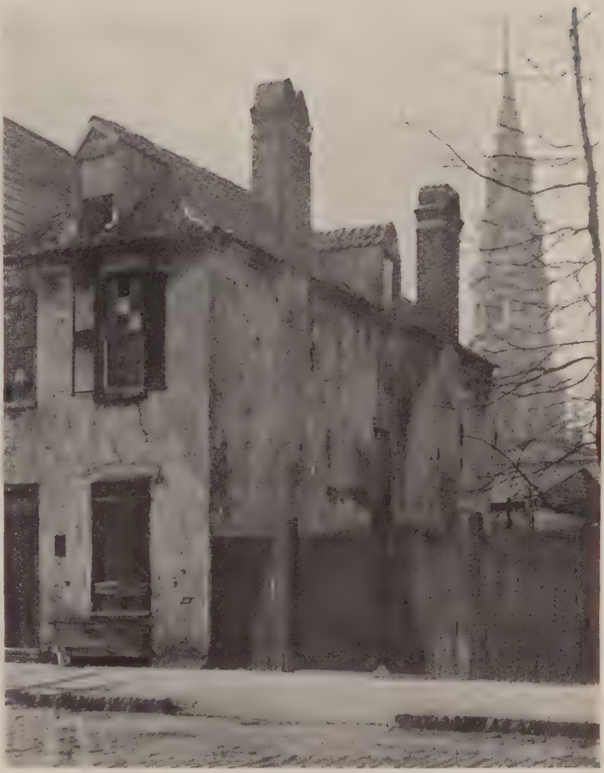


Living Room at 3 Atlantic Street

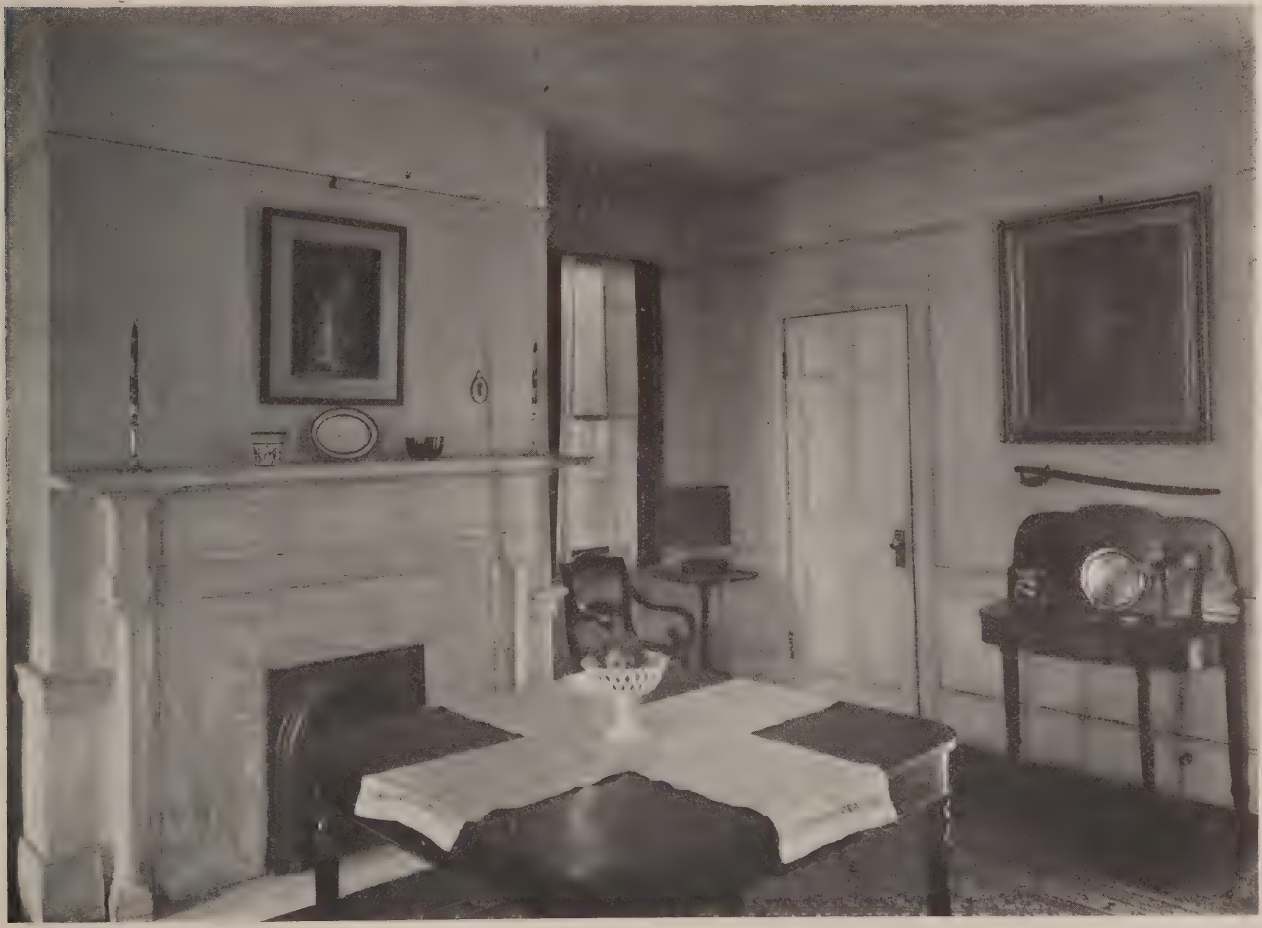
monly seen in England and Holland, and are quite different from the roof tiles of Mediterranean countries. That these tiles were not the earliest of materials used for roofing is evidenced by the fact that several tile roofs still have older shingle roofs underneath. Slate roofs are also quite common, especially if the roof has dormers; these were more successful with slate than with tile. The old slate roofs exhibit slates of many different colors and sizes, records of the passing of many storms. This gives the houses an old world, antiquated character.

The shapes of the roofs show considerable variety, and it is interesting to find, on several of the earlier buildings, that the gambrel or curved roof was used. This type of roof, which has been popularly associated with New England and with "Dutch Colonial" houses, seems to have been of English rather than Dutch origin and was tried out in this colony in early days and soon given up, no doubt because rooms so close under the roof were found to be excessively hot during the greater part of the year. There has been recently quite a vogue for this so-called "Dutch Colonial" type of roof in speculative building, where it has been exploited as something "very snappy" for the home seeker.

Besides the gambrel roof there are several examples of the "jerkin head" roof, in which the peak of the gable is splayed off by a third roof plane. It is



Old Houses on State Street

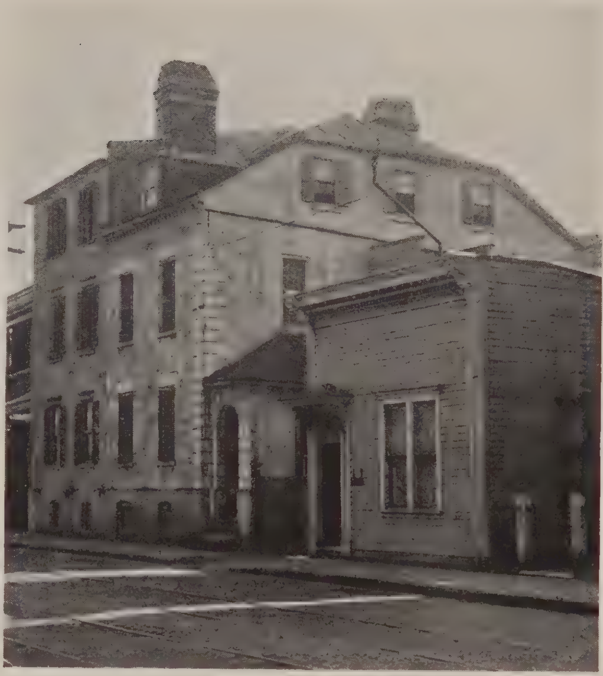


Dining Room at 3 Atlantic Street

really a compromise between a hipped roof and a gable-end roof. Just what was the purpose of this combination seems rather doubtful; perhaps it was found that the apex of the gable was troublesome to execute and to finish accurately, and that the difficulty could be avoided by bringing the roof down over the upper part, giving the roof outline a snug, blunt appearance.

An interesting detail found on many old houses is the insurance plate or fire-mark. These are oval plaques, about 8 by 10 inches, made of cast iron or lead, bearing the insignia of the company with which the house was insured. The Charleston Museum has investigated this subject quite thoroughly and has an interesting collection of these fire-marks. Some of them are of old English companies, such as the Royal Exchange Assurance Company (founded in 1680) and the London Phœnix Insurance Company (advertised in the "Charleston Directory" for 1809). Besides these there were local companies, such as the Friendly Society (organized in 1736) and the Union Insurance Company (established in 1807). Apart from their historic value in helping to identify the probable date on an old building, these plaques with their quaint devices add a spot of genuine interest to many a blank wall surface which is quite welcome.

In view of the present concerted effort of the architectural profession to rescue our cities from the depressing monotony and sordid repetition of ugly small houses, it is not out of season to invite its attention to the simple honesty and unpretentious charm of these minor buildings, which give a distinct harmony of character to the city which has produced them. Unimportant they are, in both size and finish, but they do preserve a true and intimate relation to the human scale of things, and are perennially gratifying to many whose eyes have grown tired and weary of mere bulk and costliness.



House with "Jerkin Head" Roof on Wentworth Street

House at 3 Atlantic Street

BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

Forecast of 1925 Building Activity

THE Fourth Annual Survey and Forecast of The Architectural Forum has just been completed and tabulated. Individual reports of prospective activity for the year 1925 were obtained from 1562 architects, divided into 19 building types as indicated in the table given here. An analysis of this information with proper weighting indicates that the year 1925 is to be another $5,000,000,000 year, the actual figures determined by the Survey being $4,992,318,000.

This Survey was conducted in exactly the same manner as those issued successfully for the past three years, during which period the Forecast of The Architectural Forum, presented at the first of each year, has closely approximated the actual totals for the year. In January, 1924 the published forecast of The Forum predicted an expenditure of $5,560,367,700 during that year; figures now available prove that this prediction was correct within 3 per cent. A recent statement by S. W. Straus & Co. says that "the year 1924 has been the largest building year in the history of the country in point of financial requirements. Last year the volume was $5,500,000,000, but aggregate operations this year exceeded the 1923 total by about 4½ per cent."

A recent statement of the F. W. Dodge Corporation declares that "1924 was another record-breaking building year. Total contracts awarded during the year in the 36 Eastern states (which include about seven eighths of the total construction volume of the country) amounted to $4,481,807,000, indicating that the total volume for the entire country was well over $5,000,000,000."

Thus reports from dependable sources indicate that The Forum Forecast for 1924 was correct, and the statement made last January that "there will be a late reaction in the fall of 1924, providing during the year two peaks of building activity totaling more than $5,000,000,000 for the year," has been changed from a forecast to a fact.

All evidence would seem to bear out the prediction that 1925 is to be another such year. The basic elements which establish the total volume of building in any given year include:

An established shortage of buildings.
Public confidence in the building situation.
Stabilized costs.
Good transportation conditions.
Availability of ample mortgage money.
Good labor conditions.
Well maintained rentals.
Sound general business conditions.

BUILDING TYPES	N. EASTERN STATES	N. ATLANTIC STATES	S. EASTERN STATES	S. WESTERN STATES	MIDDLE STATES	WESTERN STATES	U.S.A.
Automotive	$13,038,000	$37,896,000	$3,381,000	$8,604,000	$53,691,000	$25,848,000	$142,458,000
Banks	6,939,000	79,770.000	6,255,000	13,791,000	46,431,000	16,935,000	170,121,000
Apartments	39,879,000	284,931,000	19,077,000	28,881,000	163,779,000	42,810,000	579,357,000
Apartment Hotels	15,030,000	69,270.000	7,275,000	14,670,000	75,165,000	21,945,000	203,355,000
Clubs Fraternal, etc.	31,020,000	107,028,000	7,455,000	13,689,000	121,317,000	41,283,000	321,792,000
Community Memorial	7,023,000	24,054,000	765,000	3,765,000	14,454,000	10,971,000	61,032,000
Churches	22,389,000	106,740,000	16,905,000	37,494,000	150,063,000	39,885,000	373,476,000
Dwellings (Under $20,000)	15,837,000	109.281,000	10,809,000	11,904,000	64,497,000	23,394,000	235,722,000
Dwellings ($20,000 to $50,000)	9,303,000	36,636,000	6,594,000	5,622,000	31,086,000	12,699,000	101,940,000
Dwellings (Over $50,000)	4,710,000	21,717,000	1,620,000	4,635,000	15,036,000	7,812,000	55,530,000
Hotels	33,615,000	95,874,000	31,710,000	19,035,000	160,824,000	52,635,000	393,693,000
Hospitals	13,620,000	88,770,000	4,980,000	17,448,000	61,395,000	42,825,000	229,038,000
Industrial	37,770,000	115,089,000	7,191,000	13,698,000	178,050,000	40,569,000	392,367,000
Office Buildings	39,303,000	222,441.000	12,426,000	36,039,000	103,359,000	75,051,000	488,619,000
Public Buildings	8,103,000	51,981,000	4,911,000	12,666,000	51,510,000	57,930,000	187,101,000
Schools	79,335,000	263,784.000	27,291,000	51,687,000	229,641,000	75,120,000	726,858,000
Stores	15,630,000	45.030,000	4,965,000	6,708,000	41,685,000	23,220,000	137,238.000
Theaters	24,450,000	36,495,000	4,944,000	8,484,000	40,512,000	21,096,000	135,981,000
Welfare Y M C A, etc	1,353,000	18,417,000	1,305,000	6,171,000	15,096,000	14,298,000	56,640.000
TOTAL VALUE OF NEW BUILDINGS	$418,347,000	$1,815,204.000	$179,859,000	$314,991,000	$1,617,591,000	$646,326,000	$4,992,318.000

Detailed Forecast of Building Activity for 1925

In regard to the existing building shortage, the survey recently conducted by S. W. Straus & Co. says that "the year 1924 closes with a building shortage of considerable magnitude confronting the industry. In the cities of more than 10,000 population alone, this shortage is in excess of $4,000,000,000 in value, with a very large apparent shortage in places of less than 10,000 population." Of course in certain districts the building shortage has to a considerable extent been met, but at present building costs the normal expenditure required in this country is approximately $3,500,000,000, so that even at the $5,000,000,000 rate it will take several years of more than normal activity to meet the requirements of the shortage which accumulated during the period from 1913 to 1920.

There has occurred no abrupt rise in building costs or trouble in the labor situation to disturb public confidence in building. In fact conditions today are better than they were a year ago, for we have behind us a year remarkably free from labor disturbances and one in which building projects proceeded in a smoother manner than for many years before. Interest in investments in mortgage bonds and individual financing of building projects continues unabated, and there are no signs to indicate anything but a strong element of confidence in the real estate market and throughout the building industry. In certain districts speculative building has been overdone, and it may well be that the volume represented by that field will be less in 1925 than in 1924; but, on the other hand, the volume of institutional and commercial building promises to overbalance this situation.

The handling and shipping of building materials have been greatly facilitated by improved transportation conditions, and this fact coupled with the good production situation makes it possible to obtain deliveries without undue delay, so that the element of waste has been considerably eliminated from the building cost situation. Building material manufacturers are producing and distributing their products today more extensively and more smoothly than ever.

Building finance is in excellent condition, due primarily to the confidence of the public in this field and to the ability of building promoters to pay well for the use of money. Reports from mortgage companies everywhere indicate confidence in the situation and willingness to aid in any legitimate building project. The amount of money directed into building channels through mortgage bond companies is increasing every year, and mortgage bonds have become a standard form of investment in every section of the United States. Secondly, financing has also become easier, and with fairly well stabilized building costs it is probable that building operations can be carried out with an even smaller proportion of equity than at any time during the past few years. Real estate circles report considerable activity in the sale of sites for buildings of all types, including a considerable movement in all the suburban districts.

The labor situation in the building field promises little or no trouble this year. In the various trades the union scales have evidently been worked out in a manner reasonably satisfactory to all parties, and many agreements between labor and employers will probably remain in force at least during the year 1925. As no great disturbance is anticipated in this quarter, this condition becomes an important factor tending toward continued prosperity in the construction industry.

It may also be noted that rentals are evidently being well maintained on present levels, and consequently building projects offer excellent opportunities for investments with a strong speculative factor still in evidence. No great change is anticipated in this condition during 1925, as the demand for various classes of building occupancy is still strong enough for certain districts and building types where past shortage has been overcome, and even here there has been no great reduction in rental income.

Speaking of general business conditions and of the building situation, Secretary Hoover in a recent statement on the economic prospects for the year 1925, says in part: "The construction work of the country has maintained high activity. While the shortage, particularly of housing and business buildings due to the cessation of construction during the war, has been to a large degree overcome, continued high real wages and general prosperity create a demand in excess of that due only to increasing population, because of the insistence of a population accustomed to rising standards of living for more elbow room and better housing generally. One striking factor in maintenance of increased construction activities is the effect which the automobile is producing in increasing the demand for road construction and in causing migration of population in many of our towns to new housing in the suburbs. Another effect of these forces is to maintain rents out of line above the general price levels. With our high real wages and little unemployment, there is no reason to expect any material change in the course of this industry.

"The annual survey of the Department of Commerce shows that the New Year begins with the economic structure of the world upon more solid foundations than at any time since the war. With the exception of a few spots of secondary importance there has been during the past year a real advance toward social, economic, and political stability throughout the world. The only exceptions are Russia and China, which even before the war contributed less than 3½ per cent of international commerce, and of course a part of this continues. Generally the world is producing more goods, there is fuller employment, there are higher standards of living, more assurance of economic stability for the future, and more promise of peace than we have seen for many years. The world is by no means free from liability to economic shock, yet the forces in motion today all tend to great promise for 1925.

Percentage of Public Demand for New Buildings—A Comparison Between the Years 1924 and 1925

The figures shown here are percentages indicated for various building types and geographical localities. The percentages are those from The Architectural Forum Building Forecast for 1924 and for 1925. Each indicates the relative proportion of the total amount of prospective building represented by the specific building type. Percentages for the two years are presented together in each division so that the variation of interest in each type and district may be clearly shown.

Comparative Activity in Various Building Types During 1925

To demonstrate the use of this table we may take for instance the situation of bank building in the Northeastern states for 1925 as compared to 1924. In the chart the figures show that bank building in the forecast for 1924 in the Northeastern states represented 6.9% of total prospective building for that district. In 1925 bank building represents only 1.6% of the total forecast for the district. This comparison indicates that there will be much less bank building in the Northeastern states during 1925 than in 1924. On the other hand, the office building situation in this district evidences twice as much activity in 1925. Similarly, comparisons may be made for the 19 building types in six geographical divisions of the country

Type of Building	Northeastern States		North Atlantic States		Southeastern States		Southwestern States		Middle States		Western States		United States	
	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %
AUTOMOTIVE	4.4	3.2	3.1	2.	1.8	2.	2.	2.8	2.4	3.3	1.8	4.	2.6	2.9
BANKS	6.9	1.6	4.9	4.4	3.2	3.4	1.8	4.4	3.1	2.9	2.	2.6	3.7	3.3
APARTMENTS	8.1	9.5	12.7	15.6	8.2	10.6	6.	9.1	8.	10.1	16.	6.6	9.8	10.2
APARTMENT HOTELS	7.2	3.6	6.3	3.8	2.1	4.1	1.	4.7	8.6	4.6	5.	3.4	5.	4.
CLUB AND FRATERNAL	5.4	7.4	4.4	5.9	6.1	4.1	6.	4.3	6.8	7.5	4.9	6.5	5.6	6.
COMMUNITY AND MEMORIAL	.7	1.7	1.6	1.3	.7	.4	2.2	1.1	.9	.9	2.8	1.6	1.5	1.2
CHURCHES	5.1	5.4	4.8	5.9	6.9	9.4	7.	11.9	4.8	9.2	5.9	6.3	5.8	8.
DWELLINGS (under $20,000)	4.2	3.8	6.3	6.	3.8	6.	4.2	3.8	2.7	3.9	3.2	3.6	4.1	4.5
DWELLINGS ($20,000 to $50,000)	2.7	2.2	3.	2.1	2.4	3.6	2.5	1.7	1.4	1.9	1.2	1.9	2.2	2.2
DWELLINGS (above $50,000)	2.6	1.1	1.8	1.3	.9	.9	1.9	1.4	.8	.9	1.3	1.2	1.6	1.1
HOTELS	6.1	8.1	9.5	5.4	23.6	17.6	15.9	6.	11.8	10.	11.	8.	13.	9.2
HOSPITALS	3.4	3.3	5.7	4.9	3.4	2.8	6.9	5.6	6.2	3.9	4.6	6.7	5.	4.5
INDUSTRIAL	8.2	9.1	10.1	6.3	4.7	4.	2.8	4.4	7.7	11.	4.7	6.3	6.5	6.9
OFFICE BUILDINGS	4.5	9.4	7.	12.2	7.1	6.9	13.1	11.4	9.2	6.3	13.3	11.6	9.	9.6
PUBLIC BUILDINGS	2.3	1.9	1.3	2.9	2.7	2.7	6.4	4.2	2.8	3.2	3.3	8.9	3.1	4.
SCHOOLS	18.4	18.9	12.9	14.5	19.1	15.2	11.4	16.4	15.4	14.2	12.5	11.6	15.	15.1
STORES	1.8	3.7	2.1	2.5	1.8	2.8	1.3	2.1	3.1	2.7	2.7	3.6	2.1	2.9
THEATERS	7.	5.8	1.8	2.	1.	2.8	6.9	2.7	3.7	2.6	2.3	3.4	3.8	3.2
WELFARE (Y. M. C. A. etc.)	1.	.3	.7	1.	.5	.7	1.7	2.	.6	.9	1.5	2.2	1.	1.2

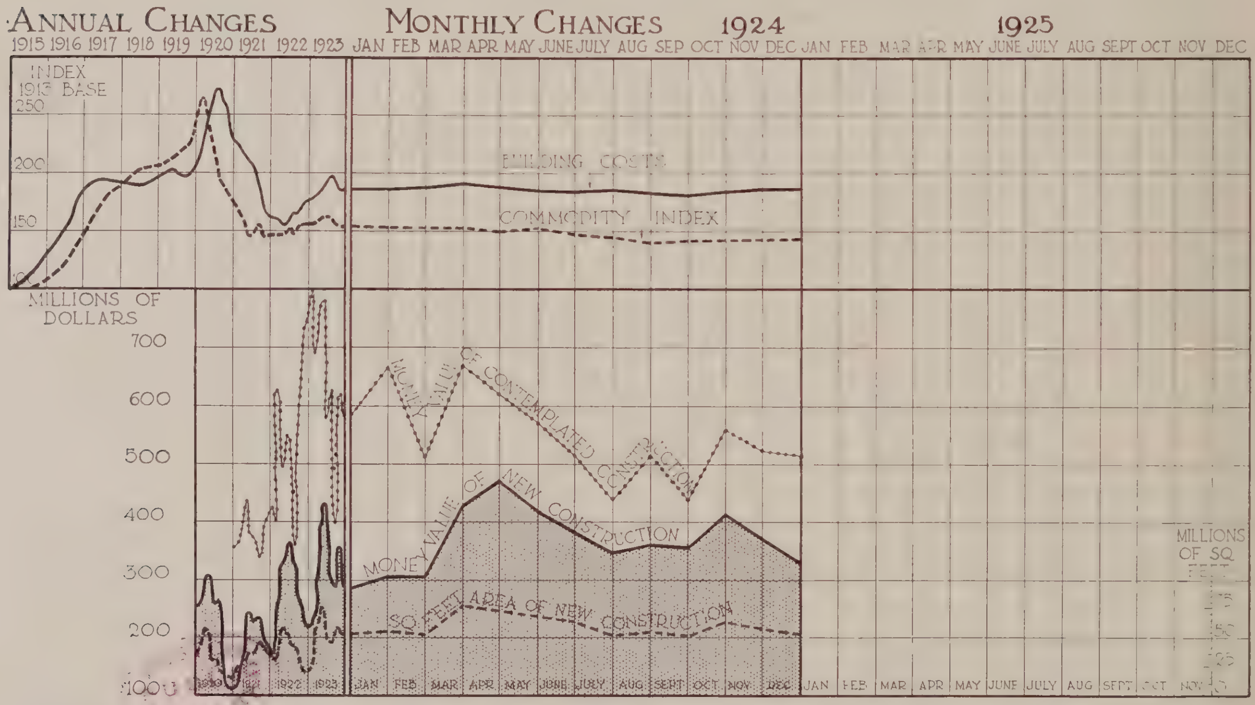
"Savings continue at a very high rate, as indicated by the increasing savings deposits, the large absorption of bond issues, and the extraordinary expansion in insurance, thus demonstrating that there has been maintained a high state of efficiency throughout industry and commerce, with little evidence of waste, extravagance and speculation. In fact the most far-reaching movement in our economic life today is the larger understanding of its broad problems, the better appreciation of the factors of stability, and the definite progress in the elimination of waste, through more stable employment, through better administrative methods, and through the rapid march of scientific discovery. That we are able to maintain wages at 100 per cent above those of the pre-war period, while the cost of living is 72 per cent and the average wholesale price of commodities about 50 per cent above pre-war values, is the very definite proof of increasing efficiency in production and distribution and free flow of competitive action."

On another page will be found an interesting comparative tabulation of the relative demands for different types of buildings in various sections of the country. These are expressed in percentages of the total demand, and in order that comparisons may be made easily, the percentages from the 1924 Forecast are given beside the percentage for the 1925 Forecast. An examination of these various comparative percentages of demand indicates some interesting comparisons in various building types. Of new construction in 1925, the various building types evidently will show these changes in ratio of public interest as compared with 1924:

Type of Building	**Comparative Activity**
Banks.	Slightly less.
Apartments.	Slightly greater.
Apartment hotels.	About 20 per cent less.
Clubs and fraternal.	Slightly greater.
Community and memorial.	Slightly less.
Churches.	Considerably greater.
Small dwellings.	Slightly greater.
Medium-sized dwellings.	The same.
Large dwellings.	Slightly less.
Hotels.	About 25 per cent less.
Hospitals.	Slightly less.
Industrial buildings.	Slightly greater.
Office buildings.	Slightly greater.
Public buildings.	About 20 per cent greater.
School buildings.	The same.
Retail stores.	About 25 per cent greater.
Theaters.	Slightly less.
Welfare buildings.	Slightly greater.

The Building Situation

A Monthly Review of Costs and Conditions



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

ENGINEERING DEPARTMENT

Illuminating the Exteriors of Buildings

By BASSETT JONES

AN interesting story is told of a famous English architect who recently visited this country and considered the Bush Terminal Building at night one of the most impressive sights he had ever seen. In describing the night illumination of this building, he said that the illuminated portion of the building seemed to be constructed with semi-transparent exterior walls of an alabaster-like material, through which powerful light from within glowed with incandescent beauty. The fact is that this entire effect is obtained by carefully studied exterior flood lighting, and the natural mistake of this architect in assuming that the soft glow was due to the use of semi-transparent walls is a tribute to the interesting possibilities of night illumination in bringing out weird and beautiful architectural effects in such structures.

Publishers Photo Service

Bush Terminal Building, New York

Helmle & Corbett, Architects

The subject of night illumination has a definite historical background in France, where even as early as the period of the later Louis building exteriors were illuminated at night with tallow candles, oil wicks and rush torches enclosed in glass globes or chimneys. The purpose of such illumination was primarily to create impressive settings for the great fetes of those periods. Similar effects are to be seen in France today as represented by the outline gas lighting in Paris, such as that used on the dome of the Invalides. Here the dome is completely covered by a large number of gas jets which, when lighted at night, flame and flicker in a most remarkable manner. The wind or even a vagrant breeze constantly extinguishes varying groups of these lights, which relight again one from the other, causing patches of light and darkness to sweep in irregular fashion and at irregular intervals over the lighted exterior of the building. The effect is weird and beautiful, and the ever-changing illumination, with a shifting background of smoke and clouds or the clear sky, provides a sight never to be forgotten.

Night illumination has for many years been carried out primarily as an important factor in planning expositions and other large groups of buildings, but within the past few years considerable interest has been expressed in the night illumination of monumental structures. The planning for such illumination is not to give a daylight effect, since it is impossible for artificial illumination to compete with daylight. The fact that a structure had been designed in relation to daytime lighting would cause the defeat of its architectural purposes were artificial lighting used in an attempt to obtain a similar architectural effect at night. Again, it is obvious that the building is often designed as part of its surroundings, and an attempt to obtain the daylight effect by artificial lighting would throw the building out of its environment and destroy its scale.

Obviously then, night illumination should properly be considered as an individual study, with no effort made to obtain the daytime architectural effect, but with full consideration given to the effects obtainable through the use of sweeping floods of white and colored light, blended softly or focused strongly to obtain the desired effects, which may be beautiful indeed.

No two buildings can be treated alike. Each is an

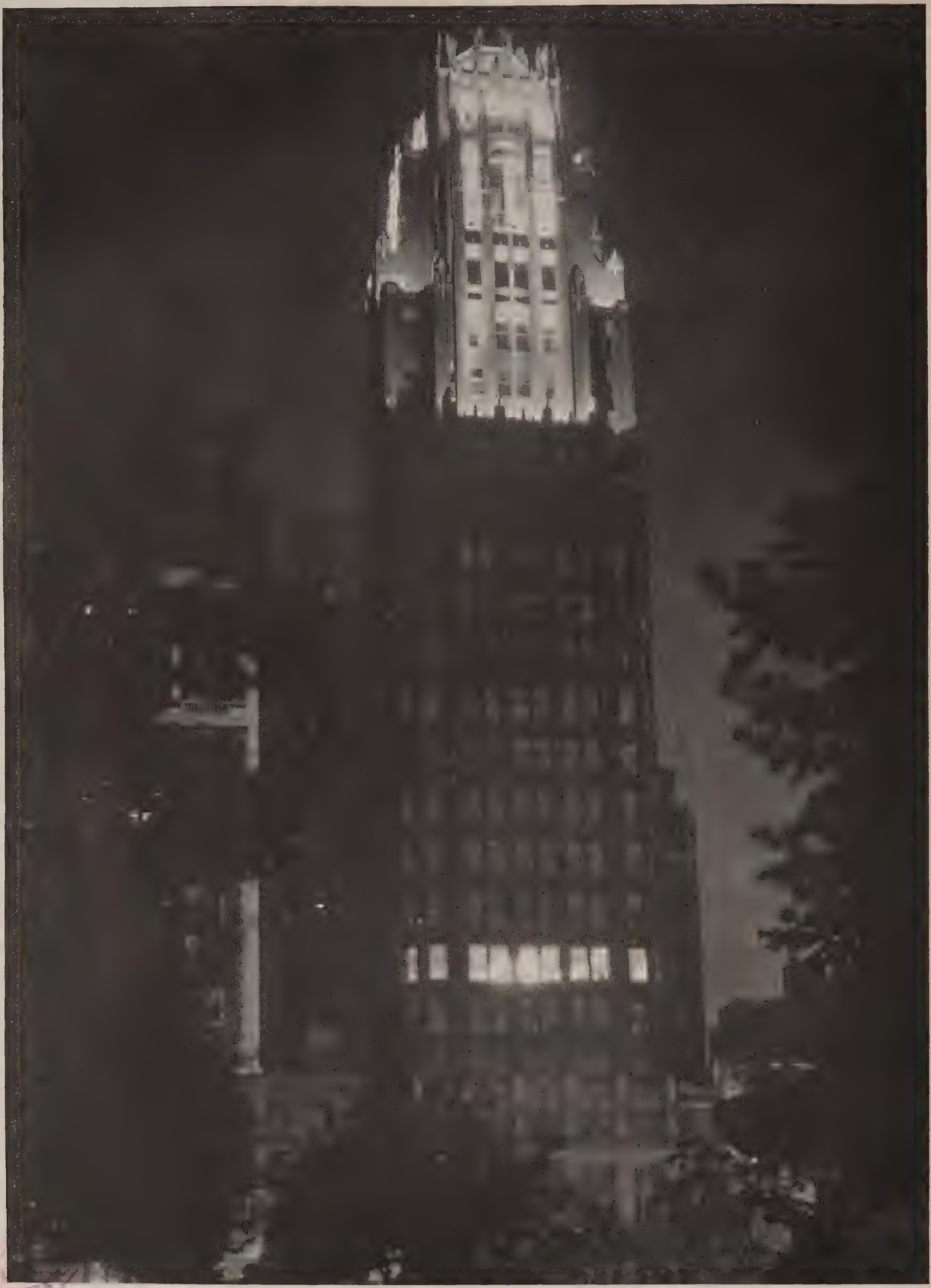
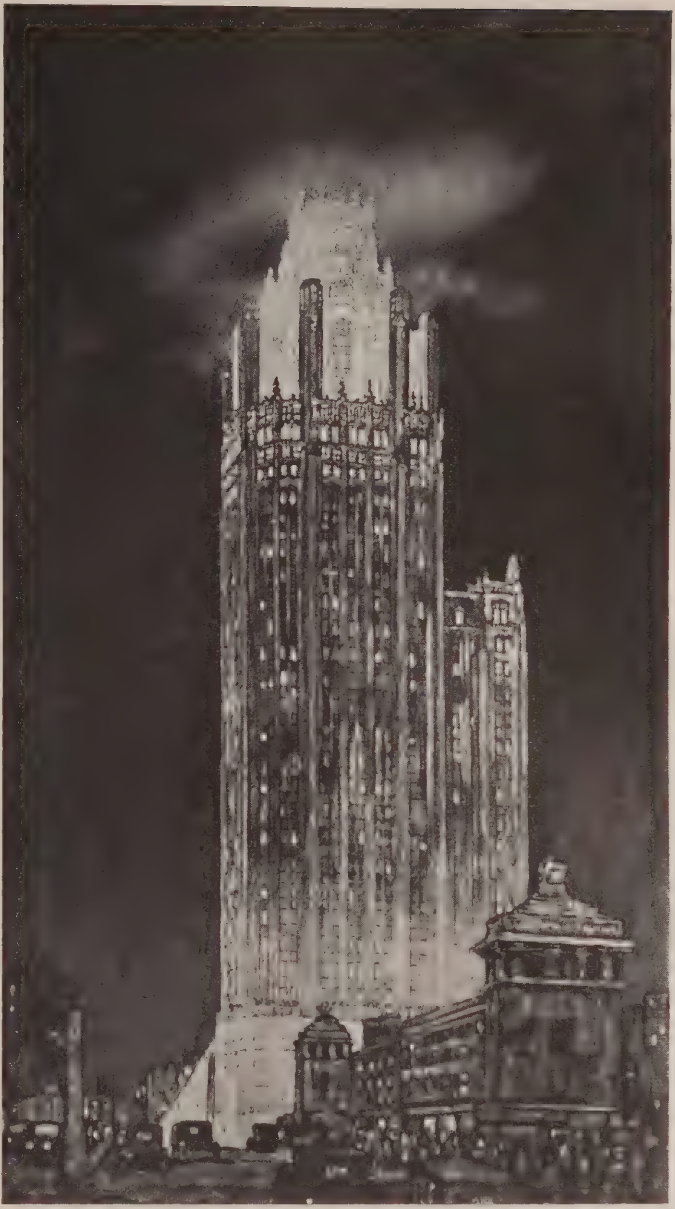


Photo. Peyser & Patzig, Inc.

AMERICAN RADIATOR COMPANY BUILDING, NEW YORK
RAYMOND M. HOOD, ARCHITECT

individual problem, and the solution which would provide excellent night illumination for one building would be found totally inappropriate for another. Just as in the development of stage lighting each set or each scene calls for its logical lighting effects, so a building cannot be treated merely by flinging light at it; the lighting effects must be worked out from the inside and outside to meet the specific requirements of what might be termed "illumination design."

There are, of course, many methods and various combinations employed to obtain the desired effects of night illumination. I may mention that one of the most effective night lighting schemes which I have seen was that used for the Metropolitan Tower during the Hudson-Fulton celebration in New York. The method employed was simple and ingenious. Every window in the structure was lighted by the installation of a reflector within each window head, throwing a light between the window and the fabric window shade. This light illuminated the *outside* of each shade, all of which were pulled down. The result of this method of night illumination provided for this building a scale of magnitude even greater than it possesses in the daytime. The sense of dignity was enhanced as the greater mass of the structure, black in contrast to the purplish night sky, stood out in sharp silhouette, spangled with thousands of golden rectangles. The softened effect of lighting the windows in this manner was much more interesting than the sharp, bright light spots which would have resulted if the shades were left up and the lights turned on in each room.



The Tribune Tower, Chicago
John M. Howells and Raymond M. Hood, Associated Architects

It seems quite natural to think of buildings at night as lighted from within, and this fundamental reaction may well serve as the basis for the night illumination of large structures. It lends itself to interesting treatment and provides much opportunity for the exercise of the imagination. This, lighting the building from within, seems to me the only proper basis for the design of its night illumination. It may be treated in many ways,—quiet and dignified, elaborated, or even accented to a surprising and spectacular extreme,—but it must never be altogether discarded. It may be modulated by illuminating the principal lines or masses of the exterior, or merely by substituting lines of light for structural lines, so as to pull the whole together and develop a definite and appropriate composition. But, however it be done, it is the building itself that should give forth light.

There are several interesting examples of night display for large buildings as illustrated in this article. One of these is the night illumination of the new building of the American Radiator Company at 40 West 40th Street, New York, designed by Raymond M. Hood. This building presents an unusually interesting problem of night lighting because its exterior walls are of black brick with extensive trimming in color. The buttresses, pinnacles and the tank upon the roof are decorated with bright colored areas of tile,—in all an unusual combination of exterior materials.

From the viewpoint of night illumination, the black surfaces of this building are particularly attractive, because if colored light is used the resulting hues are dark and rich. The effect of this building when lighted at night is almost that of pouring over the structure a great volume of spectral-hued incandescent material which streams down the perpendicular surfaces, cooling as it falls and collecting like molten lava in every recess and behind every parapet. Thus the great shaft stands black below, with the colored, wavering incandescence blending from the black to comparatively brightly lighted areas at the top of the building, while here and there are accidental golden areas of windows opening into lighted interiors. All this effect is built up on a base of light provided by the brilliant show windows and entrances on the street level. The lighting plan developed to obtain this effect includes at every setback and behind every parapet floodlights with rose, scarlet, amber and blue screens. Here and there the flame-like coronæ of powerful projectors paint the walls and buttresses above, while each hidden recess glows like fire above and fades below. The intensity of colors is lessened, and the combined hues become lighter as the eye nears the top of the building, where clear floods of light bring out the color in exterior decorative surfaces.

Another interesting project of night lighting is that involved in the plan developed for the *Tribune* Tower in Chicago, which is again peculiarly adapted for night illumination. Just across Michigan Boulevard stands the sheer, white, flood-lighted shaft of the Wrigley Building, but the plan for the *Tribune* Tower is to produce a fine composition in light and color, based upon the architectural design. I think of this great tower as standing in a pool of rose colored light, from which it rises like a wonderful fountain,—a marvel of Gothic tracery, of light against the sky. The walls to the fifth floor are plain masses of stone, pierced by a great entrance which is backed by a pierced stone curtain, almost like the reredos over an altar. The windows at the fifth floor level are hooded niches. In each hood a 250-watt flood, one for each window, will throw a spreading beam of rose colored light upon the side walls. Through this light will be seen the golden show windows and the super-brilliantly lighted entrance. Below the fifth floor, at the second floor level, will be eight bracketed 1800-watt incandescent searchlights, facing upwards, the white beams of light being directed vertically along the eight main shafts of the structure. Above this, except for the luminous vertical shafts, nothing other than the accidental window lighting is seen until the 25th floor is reached, and here there are 16 arches, each picked out by a 600-watt strip built into the window sill. Above this is an attic floor, with opal glazed windows in stone tracery lighted from within; then comes the first roof, surrounded by a tall parapet of stone tracery. This tracery will be picked out by 500-watt flood lights on the roof, thus lighting the parapet from behind. Then, from this parapet rise eight shafts connected with the central tower by flying buttresses. On the roof behind the parapet will be placed a number of 1000-watt floods, filling the space with a pool of rose colored light, which will pick out shafts, buttresses and tower, dying away upwards.

This central tower is octagonal in plan, and its six floors have windows on each face. Each vertical row of windows terminates in an arch so that, in effect, each such row constitutes a single tall window, crossed and divided vertically by stone mullions. Behind each window on each floor a roller curtain will be installed. The curtains will be painted on the outside faces in bright metallic colors and lighted by vertical strips worked into the window trim. When seen from a distance at night, it is anticipated that these windows will have the appearance of tall, arched cathedral windows filled with stained glass and lighted from within. Above this are the tower roof and the tank screened with stone, topping all. This tank will be illuminated by floods set behind the pinnacles, giving just enough light to prevent the structure from fading out of the picture. A tall flag pole rises from the tank. A banner flying from this pole at night will be brilliantly illuminated by projectors set on the tank roof. A circle of eight 500-watt incandescent searchlights, mounted horizontally on a ring fitting the flag pole and hoisted to the top by rigging inside the pole, will serve as a permanent beacon. This completes the equipment for ordinary use.

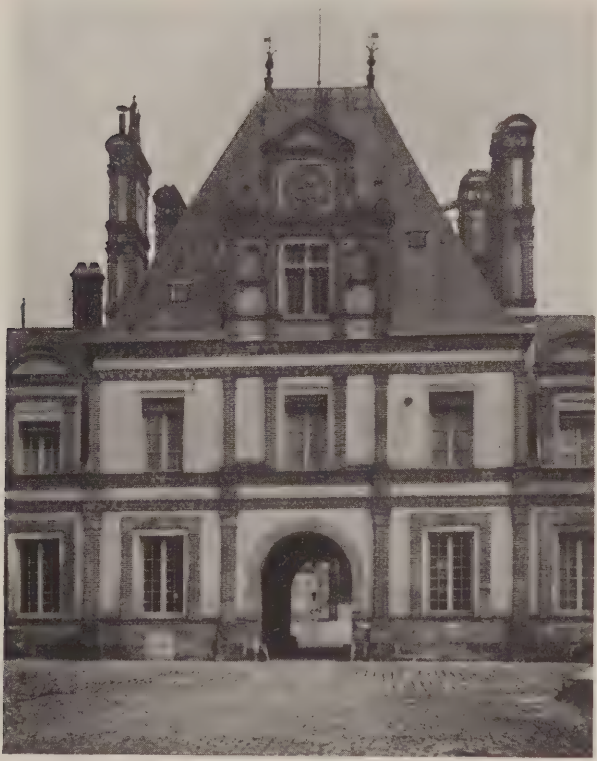
For display occasions it has been suggested that 10-boiler horsepower in steam be carried to the top of each of the eight main and eight secondary pinnacles, this steam to be discharged through nozzles designed to prevent any appearance of steam jets. Back of the parapet at the 27th floor level, on the roof between the buttresses, connections have been provided for eight 30-inch, 150-ampere automatic Navy type projectors with motor-operated iris shutters and beam diffusers. With diffused beams and exterior color filters attached, these projectors might be used to illuminate the steam from the pinnacles. The whole effect would be that of Valhalla burning in the skies, bringing to mind, possibly, the finale of Gotterdammerung. With manual control smoke boxes added, the mortars firing bombs from the tank roof, a most gorgeous display can be produced. On election nights, with the searchlight beams laid down on the eight cardinal points, and with the iris shutters simultaneously controlled from a point inside the building, a visible signalling arrangement of great carrying power will result. The beams alone will be visible for many miles against the sky, and if the nights be clear code messages can be flashed even across the lake to Michigan.

The possibilities of night illumination are almost limitless because of the great variation obtainable through colors and light intensities, and because of the possibilities in the combination of exterior and interior lighting. In this connection one remembers with interest the amazing lighting effects obtained at the Panama Pacific Exposition held at San Francisco, where some unusually fine work was done in the lighting of buildings. Here many of the individual structures were lighted in such a manner that their architectural effects were enhanced and glorified in amazing beauty.

From the architect's viewpoint, this subject offers an extremely interesting study. The practical value of night illumination is of course chiefly measured in terms of advertising and institutional prestige, adding to the fame of deservedly renowned buildings.

The Forum Studies of European Precedents

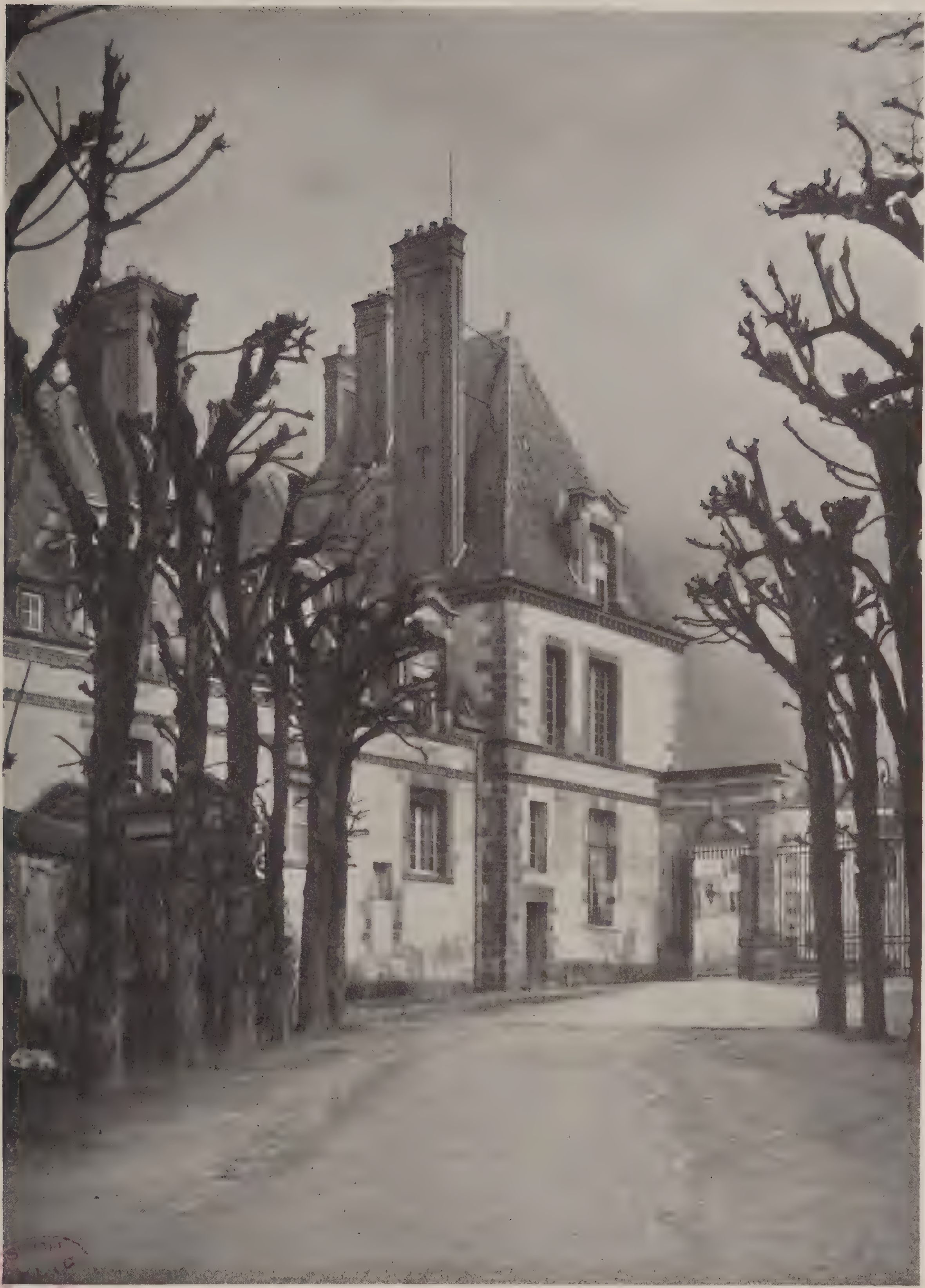
The Palace of Fontainebleau



Center Pavilion of the Left Wing
Built by Francis I

ALTHOUGH tradition attributes the building of Fontainebleau to King Robert in the tenth century, it is definitely known to have existed as early as 1137, because several charters granted by Louis VII were there drawn up. Most of the present palace dates back to the time of Francis I, who during his reign from 1515 to 1547 replaced the old castle with many of the buildings we see today. Desiring to make it his favorite residence, he brought from Italy architects and artists who demolished the old buildings of the *Cour Ovale* and built the *Pavilion de Port Doree*, the ballroom wing, the *Chapel de St. Saturnin*, the Trinity Chapel, the *Galerie de Francois I*, the *Galerie de Ulysse*, and the buildings that surround the *Cour du Cheval Blanc*.

Under Henry IV, who reigned from 1589 to 1610, further extensive additions were made to Fontainebleau. He erected buildings in the *Cour des Offices* and the Princes' Court, and two pavilions that terminated in the *Cour Ovale*, the garden and pond pavilion, the *Galerie des Cerfs*, the *Galerie de Diane*, the *Galerie des Chevreuils*, and the Orangery. He also completed the decorations of the Trinity Chapel and the drawing room of the *Belle Chiminee*. Further additions and alterations were carried out by Louis XIII, who commissioned Lemercier in 1612 to construct the Horse Shoe Staircase. Many galleries and apartments were demolished or redecorated by the three famous Louis who followed, but the greatest period in the history of Fontainebleau came with the First Empire. As it had been deserted since the end of the reign of Louis XVI and throughout the Revolution, Napoleon found it in a state bordering on ruin, and set to work restoring and refurnishing wherever necessary. Today the palace is almost as he left it, a magnificent monument to the architects, artists and artisans of the great years of the French Renaissance.



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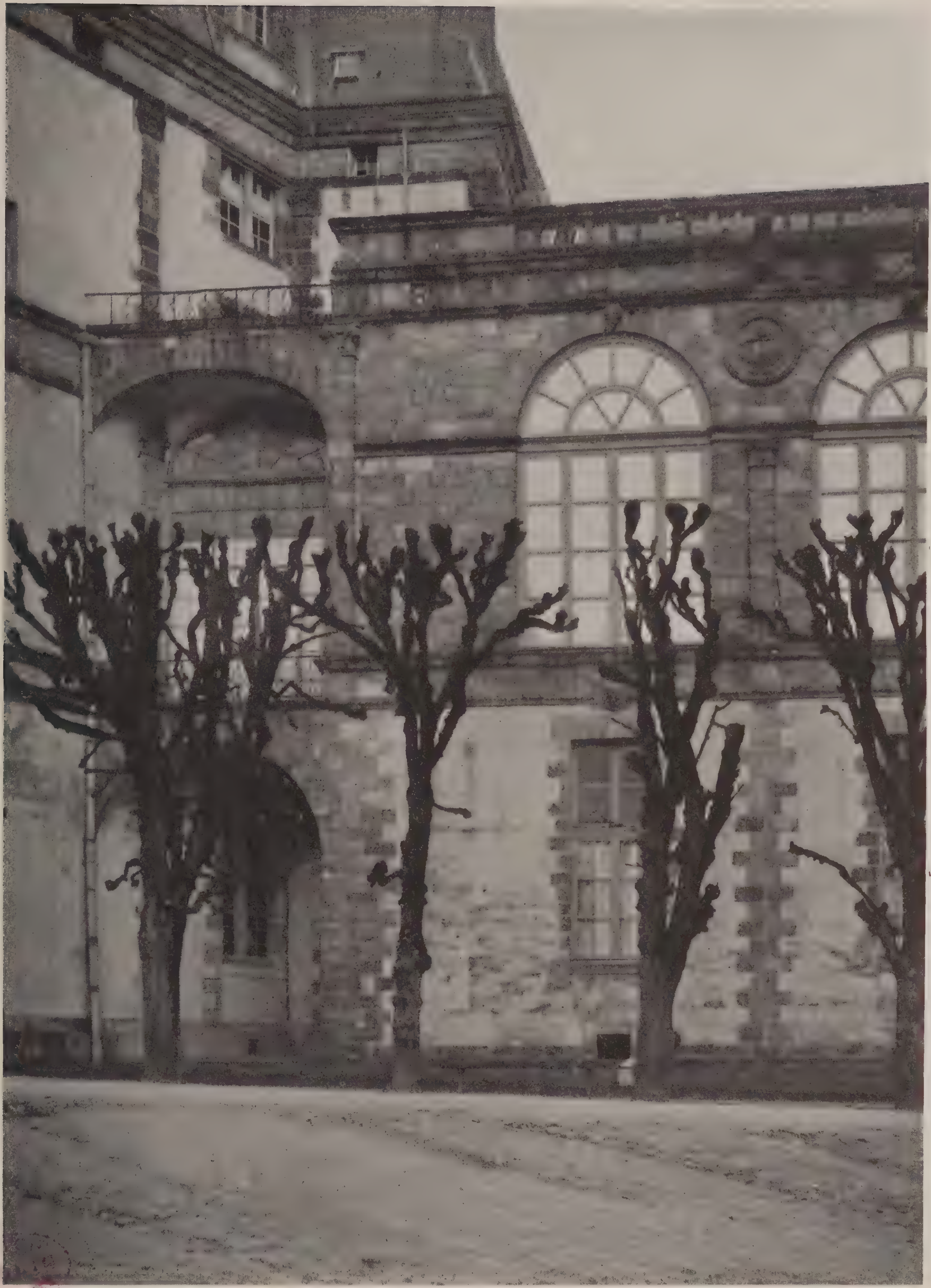
FONTAINEBLEAU; ONE OF THE CORNER PAVILIONS BUILT BY HENRY IV

The Forum Studies of European Precedents; Plate 26



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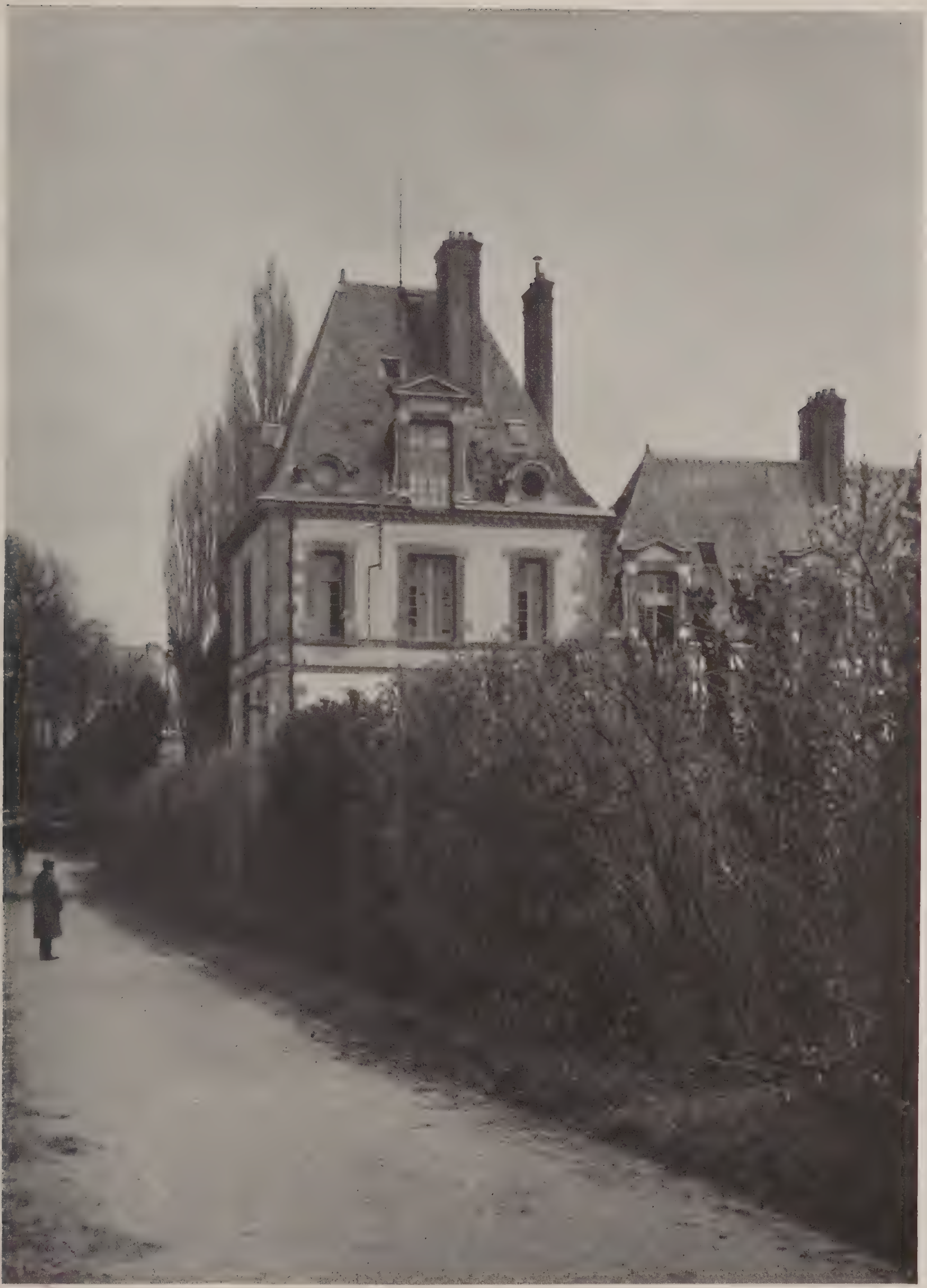
FONTAINEBLEAU; DETAIL OF TRINITY CHAPEL BUILT BY FRANCIS I



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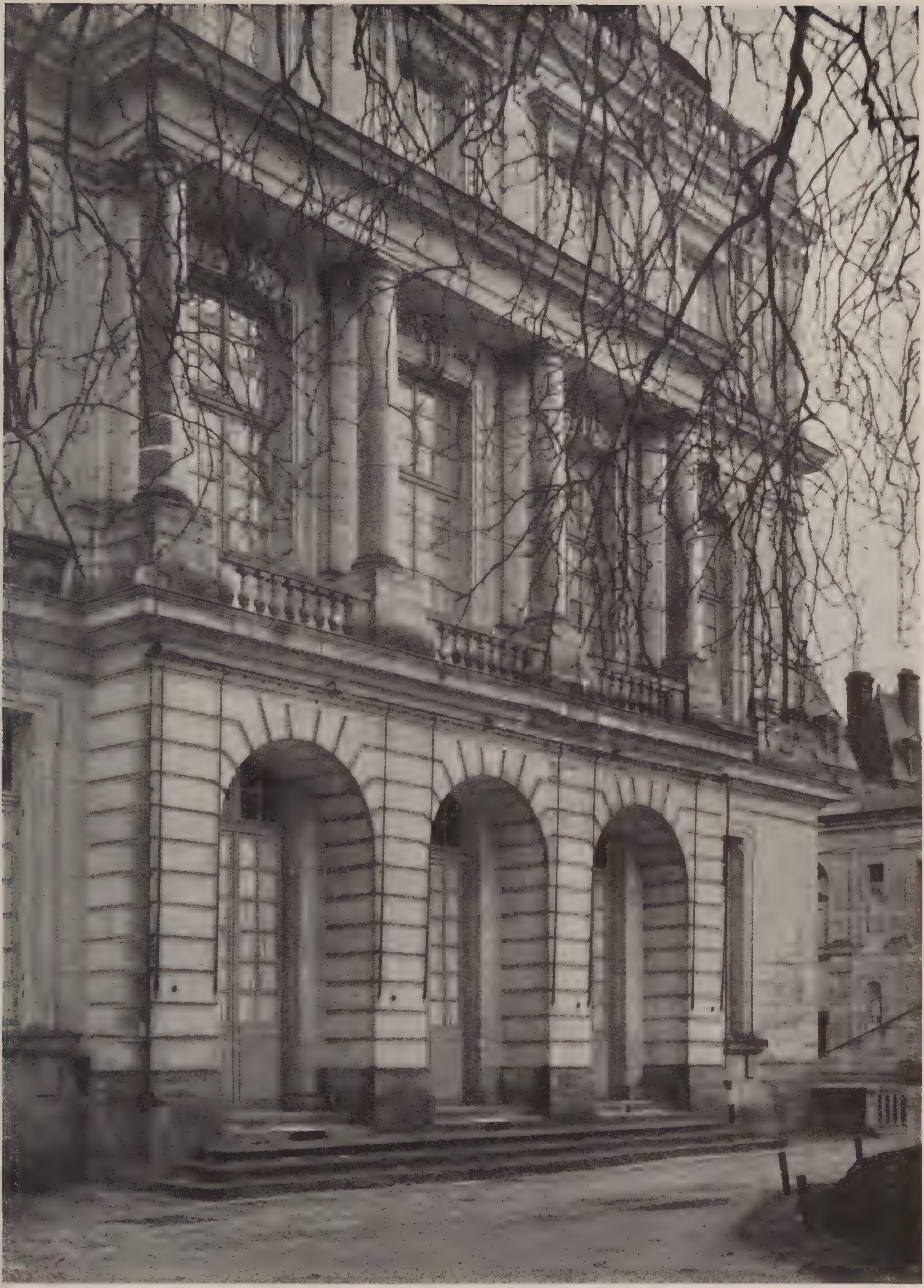
FONTAINEBLEAU; CORNER PAVILION FROM THE ALLEY BETWEEN PALACE AND STABLES

The Forum Studies of European Precedents; Plate 28



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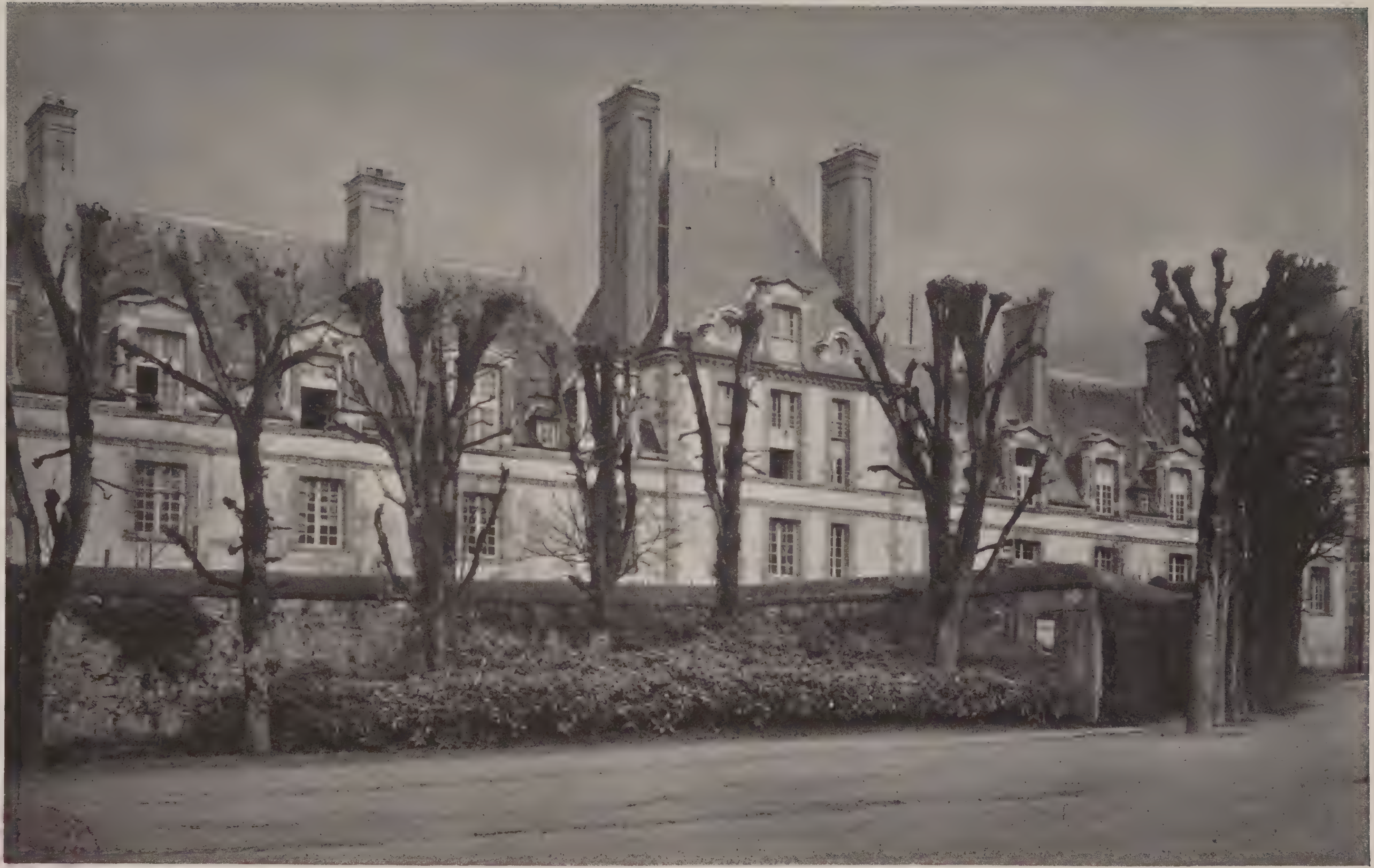
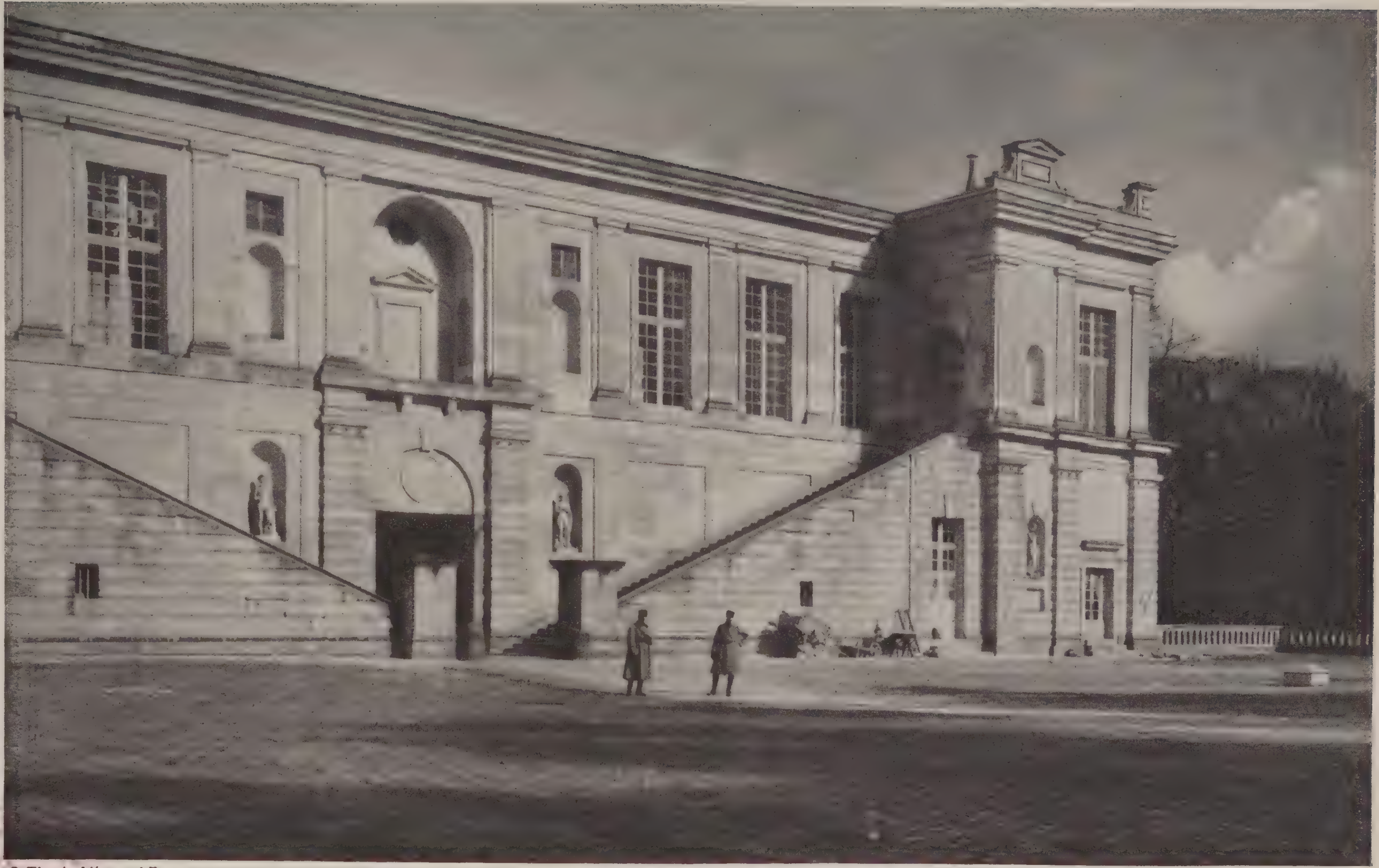
FONTAINEBLEAU; DETAIL OF HENRY IV PAVILION FACING THE CARP POND

The Forum Studies of European Precedents; Plate 29



FONTAINEBLEAU; FACADE OF THE STABLES FROM THE HIGHWAY



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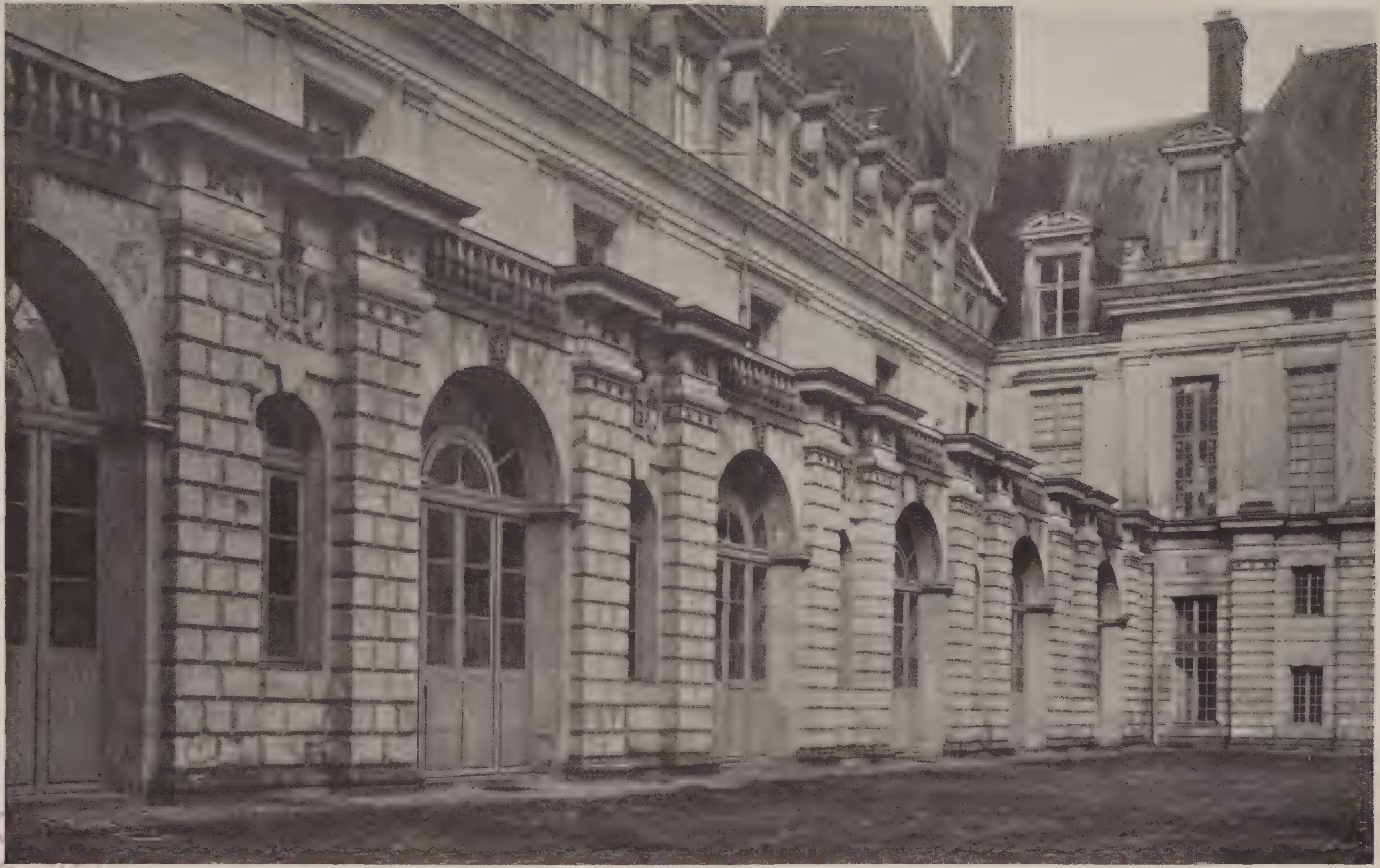
FONTAINEBLEAU; EXTERIOR STAIRCASE FACING THE COURT OF FOUNTAINS BUILT BY HENRY IV



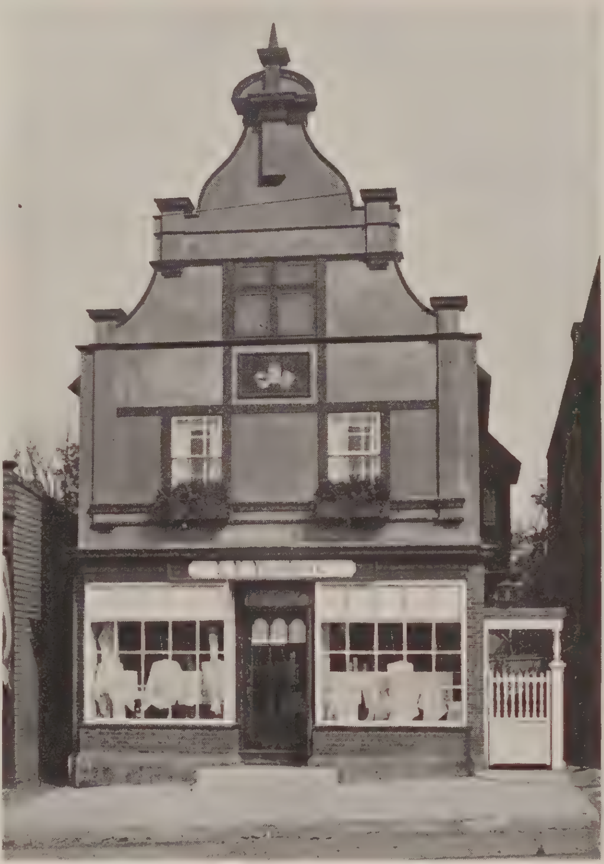
FONTAINEBLEAU; THE HENRY IV ORANGERY IN THE COURT OF FOUNTAINS

SMALL BUILDINGS

The Architecture of the Small Shop

PART I. DESIGN DERIVED FROM PERIOD PRECEDENT

Editor's Note—"The Modern Arcade Development in Small Store Design," Part II of "The Architecture of the Small Shop," will appear in the August, 1925 issue of The Architectural Forum as an exhaustive treatise on the development of increased display space through the use of recessed windows in metal and plate glass. Modern influence on the architectural treatment of the fronts of such buildings will be indicated.

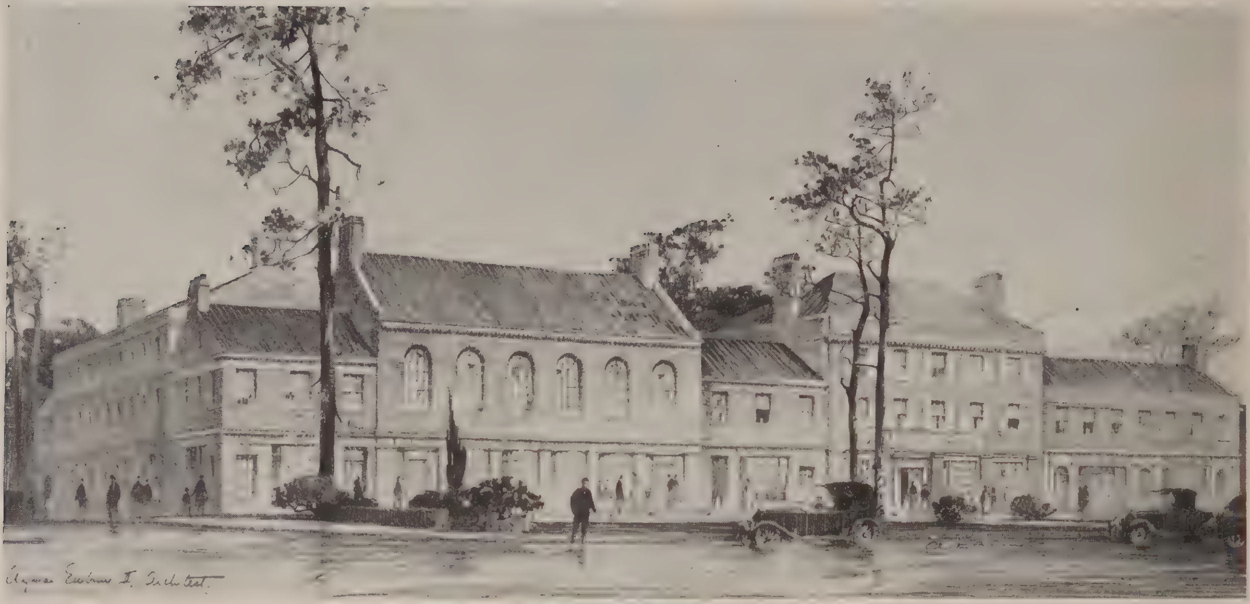


A Shop Building in Dutch Style, South Orange, N. J.
Joy Wheeler Dow, Architect

THE well known Baltimore architect, Este Fisher, of the firm of Parker, Thomas & Rice, has among his friends a dealer in antiques whose shop has been for many years in one of the charming old houses of the period of the Greek Revival which give to Baltimore much of its particular charm. One day when he was in the shop, the dealer said to him: "The next time you come in, Mr. Fisher, you will find things much improved. I am arranging to put in a new store front." The architect asked to see the drawings, and found to his regret that the dealer had secured a price on a very ordinary stock type of window front which would cover the entire face of the building, completely destroying the dignity of the old period design. In selecting this new store front, no effort had been made to preserve the original beauty of the building nor to establish any reasonable scale or attractiveness. The design was such as would have detracted from the atmosphere of this type of establishment and to have so commercialized the business that probably the new store front would have defeated its very purpose. Inspired by his desire to save what he could of old Baltimore, the architect suggested that he would develop a front in keeping with the architecture of the building, and to this suggestion the dealer somewhat grudgingly assented, provided that the glass area should not be decreased nor the cost be more than called for in the contract for the proposed remodeling. This result was accomplished, and at the same time an excellent architectural effect attained.

In a similar manner Aymar Embury, II was invited to design a little bicycle shop at Englewood, New Jersey, and was able to secure bids which, including the architect's fee, came slightly under the price set by a local contractor for an ordinary front devoid of attractiveness either in the window layout or in the structural design.

It is very often the case that the architect is thus handicapped by the owner when considering the design of store fronts, because the owner is often so devoid of imagination that he cannot appreciate until he has it the commercial worth of architectural beauty and the definite sales value of the store front which exerts a subconscious buying appeal. This condition is undoubtedly more general in rural and small city districts than it is in large cities, where commercial competition is so keen that the element of attractive store front design has definitely proved its practical value. In the country districts and throughout small towns and cities there are few stimulating examples of proper store front design brought to the attention of the owner, and his competition is usually not so keen. Then, too, he works on a smaller margin of profit and with a smaller turnover, so that he has less chance for business expansion. The fact is that with sound merchandising principles any store keeper has a better opportunity to develop his business if he establishes an inviting front and attractive sur-



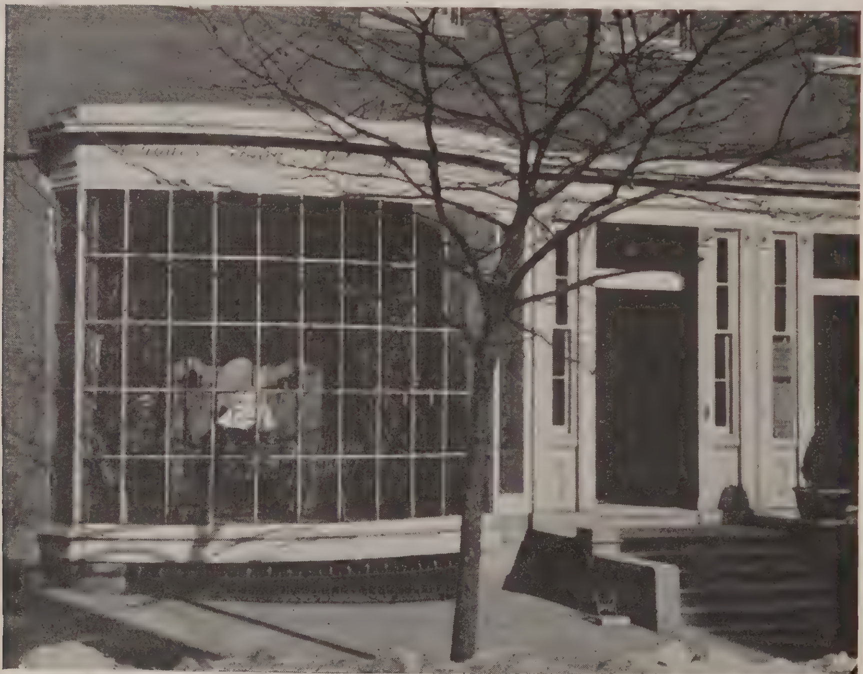
Sketch of Proposed Group of Shop Buildings at Southern Pines, N. C.
Aymar Embury, II, Architect

roundings to increase the interest of the purchaser.

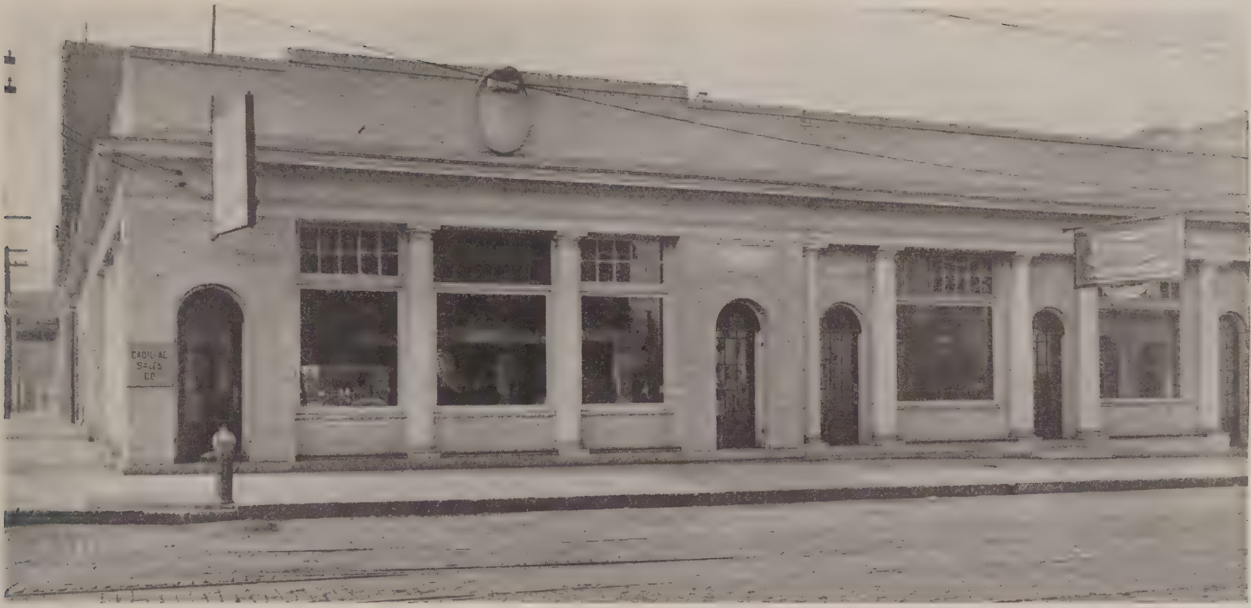
The owner's usual attitude is that he cannot afford an expensive plan, because this will mean stimulating the business of a competitor who is in a cheaper building. On the other hand, it is often the case that with the same cost of materials and labor, but with some element of architectural design, a smart building may be developed which has a tendency to attract a more profitable class of trade and invite the casual buyer who might otherwise pass by. It is quite obvious that the architect who discusses this subject with the retail shop keeper must not only establish in his mind the commercial value of good design, but must consider price as well as quality, and try to establish a satisfactory basis of acceptance on the part of the owner to justify his acquiescence.

There are today in cities, suburbs and rural districts far too many shops which have been designed by architects without sufficient study to lend the quality which in itself is an argument for securing architectural service. When the country shop keeper can look up Main Street and point to a durable, well constructed and not unsightly building designed by some local contractor, and contrast it with a shabbily pretentious affair of ornate design built from the plans of an architect, it is difficult to convince him that architectural service is worth while. So if, as is true in many districts, architects are not called upon to design store fronts as often as they should be, it is probable that the fault lies primarily with the architectural profession, and particularly with those members of the profession who have done these so-called "simple" jobs in a careless and uninterested manner. This fact was brought home strongly when searching for suitable material for this issue of The Architectural Forum.

Aside from economic considerations the problem is difficult. The tendency of the architect is always to indicate his supporting members in elevation, while that of the owner is to insist on a purely commercial front. Nor is it



A Shop Front in Baltimore
Este Fisher, Architect

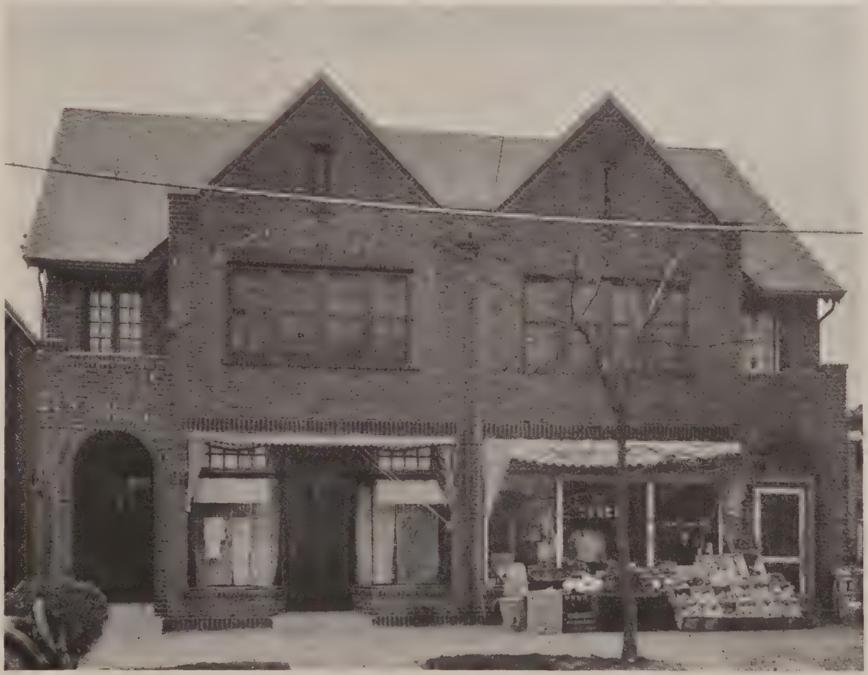


Shop Building at Knoxville, Tenn.
Aymar Embury, II, Architect

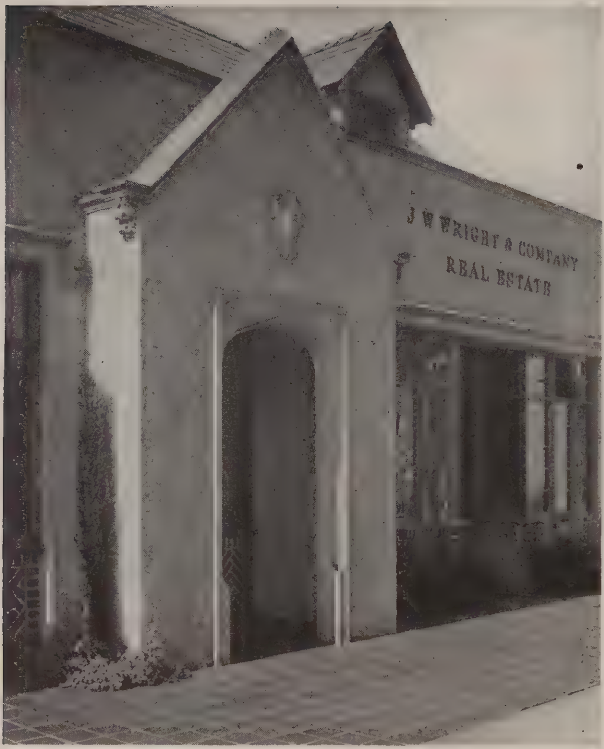
safe to assume that the tradesman is wrong; the show window must be a more important element in the success of a building than most of us realize, if we stop to think that there are practically no merchants on the street level and few on the story above the street who are willing to dispense with it. Tiffany gets along without a name plate but not without large windows; and when Cartier, who above all others caters to an exclusive clientele, transformed a splendid house on Fifth Avenue into a shop, part of the alteration included the enlarging and transforming of the windows in the first story into show windows. Use of the show window is a tradition dating back to the time when the entire front of the mediæval shop, even in the raw English climate, was open to the street, and our modern shop keeper likes to simulate the effect of openness by the installation of immense show windows.

In the development of mediæval shop fronts, a structural requirement was responsible for an excellent though accidental architectural effect. At that time no way was known of minimizing the size of the first story piers beyond the point where they would actually support the upper stories. Thus there was always an apparent as well as an actual stability of construction. Today we are able to set back our columns, corbel out the upper story to the property line and set immense sheets of glass flush with the masonry above and across the entire front, broken only by small steel mullions, so that the upper stories, be they one or many, appear to be supported on the edges of sheets of glass, creating of course a disagreeable effect.

We can also employ the recessed or arcaded treatment, which is more attractive and offers a method of greatly increasing the amount of show window space. Withal, it may be said that the most consistent architectural effects are probably obtained through following the precedent of past ages, but in these modern days we have, too, become reconciled to this apparent anachronism because of a growing



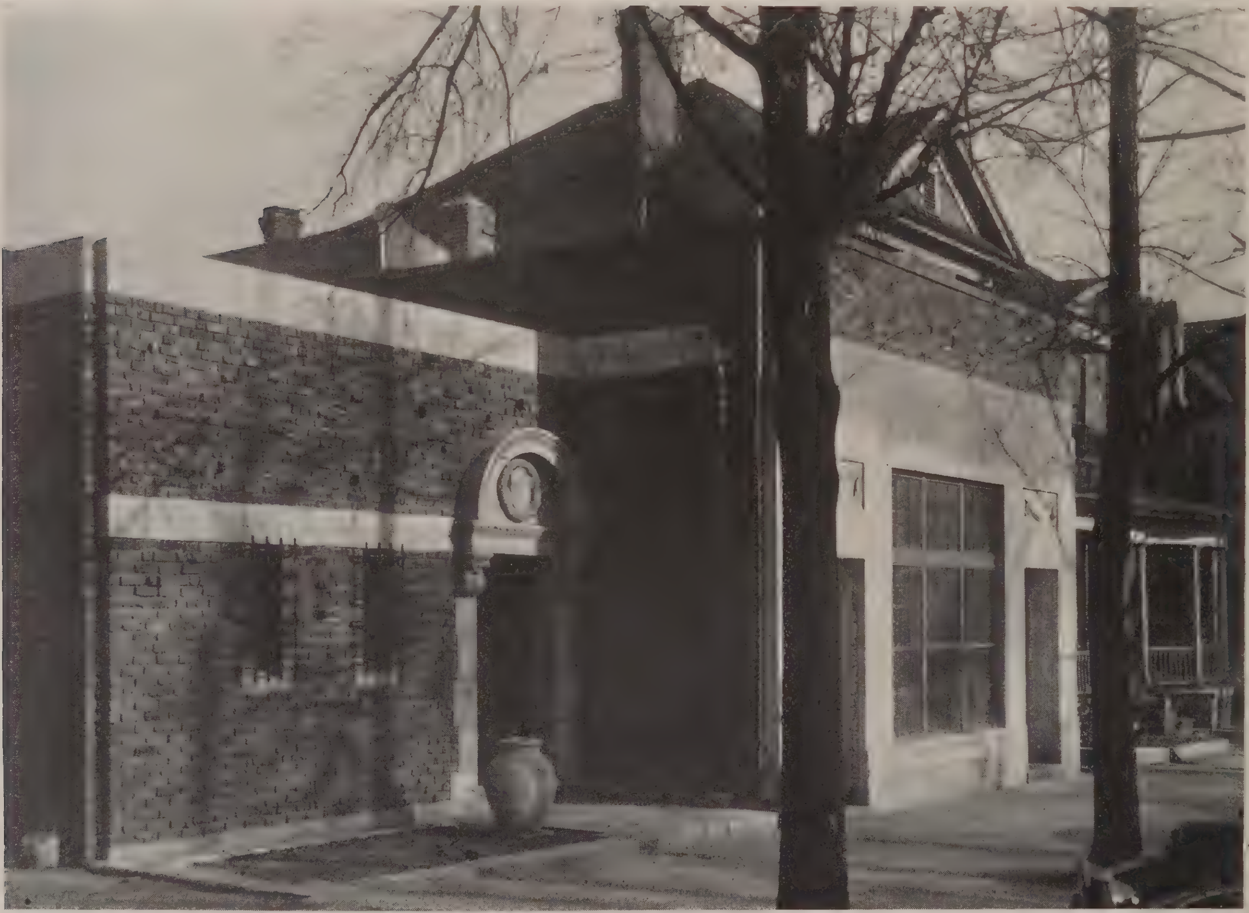
Shop Building at Forest Hills, L. I.
William S. Worrall, Jr., Architect



Detail from "Tudor Shops," Pasadena
Kenneth A. Gordon, Architect

knowledge of the properties of metal construction. From the architect's viewpoint, however, the store fronts based on period precedent, or cleverly planned under the recessing system, offer the most interesting opportunities for displaying good taste in design. Consequently, this subject is treated in both its aspects in this issue and is to be discussed again in the article to appear in the August issue of The Forum. For this article most of the shops chosen for illustration are based on period design and show use of supports adequate in appearance to support of the structures above. The special problem of glass and metal windows will be treated as Part II, in the issue of August, 1925.

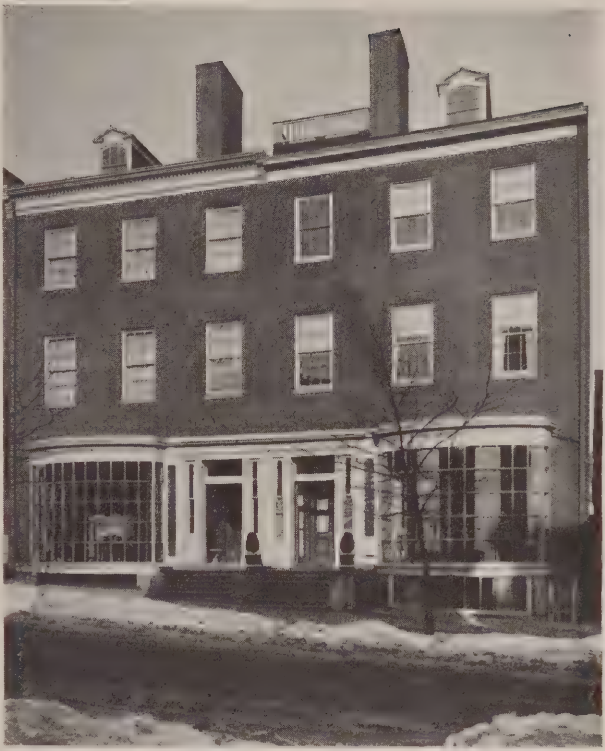
This show window problem is the most difficult which confronts the modern architect, not only because of the required glass areas, but because the upper stories have almost always a far smaller proportion of glass, and also because under modern conditions the show window is not used for window purposes at all. Many, if not most, show windows are display cases pure and simple, with glass on the fronts and with solid backs. Since the average small shop is about 20 feet wide and 60 feet deep, with natural light possible at the ends only, artificial light is necessary for the major part of the shop in any case, and the confused lighting arising from the

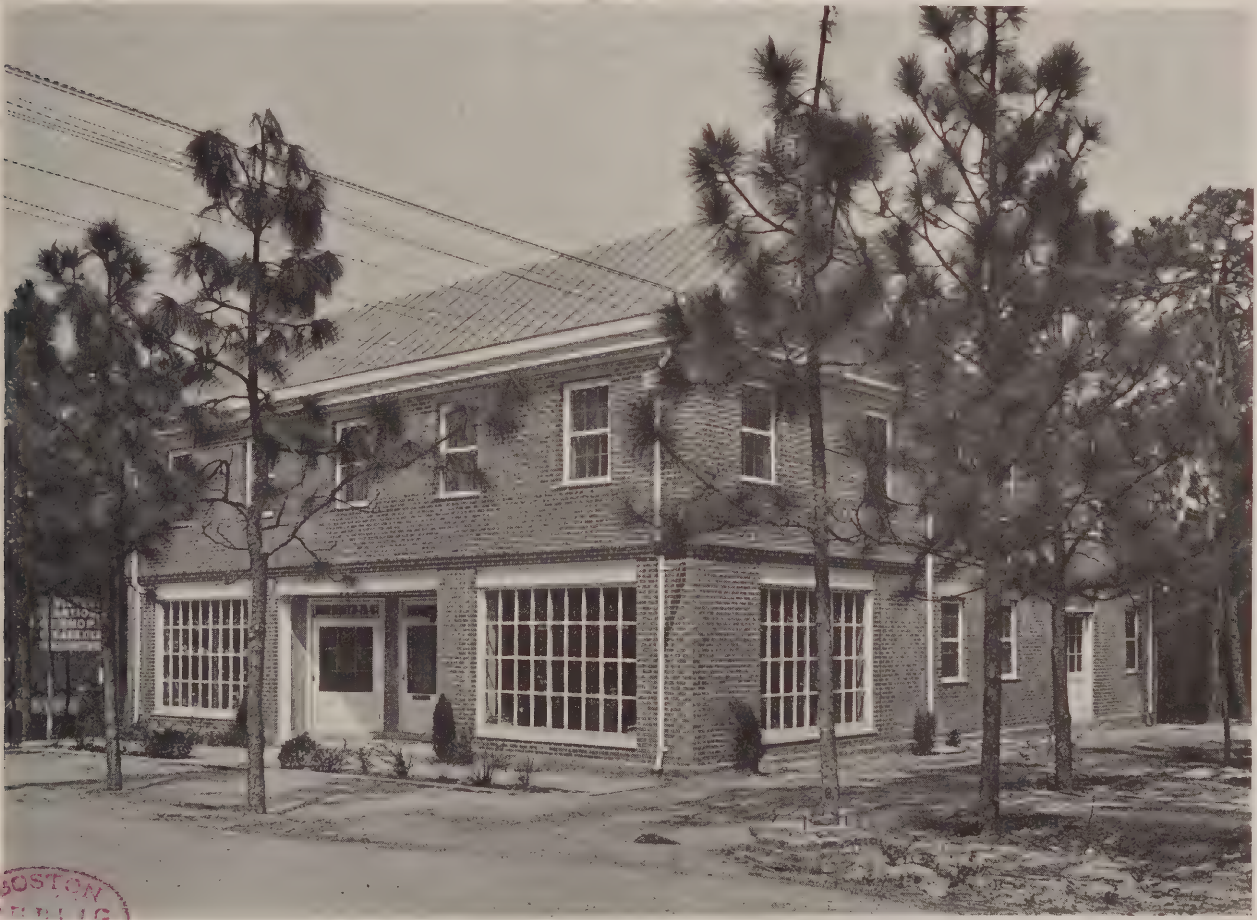


Small Shop in Birmingham, Ala.
D. O. Whilldin, Architect

mixture of natural and artificial light is not only annoying to the customer but militates against proper display of the goods. The shop keeper therefore turns to electric light as his sole illuminant, and cuts off his street light by a solid back to his show window. This results in the establishment of an apparent inner plane of support, so that the upper part may appear to be corbeled out to the depth of the show window. But as the plane of the window glass is also established as the plane of support to the wall above, an inevitable confusion of ideas and inconsistency in structural appearance follows.

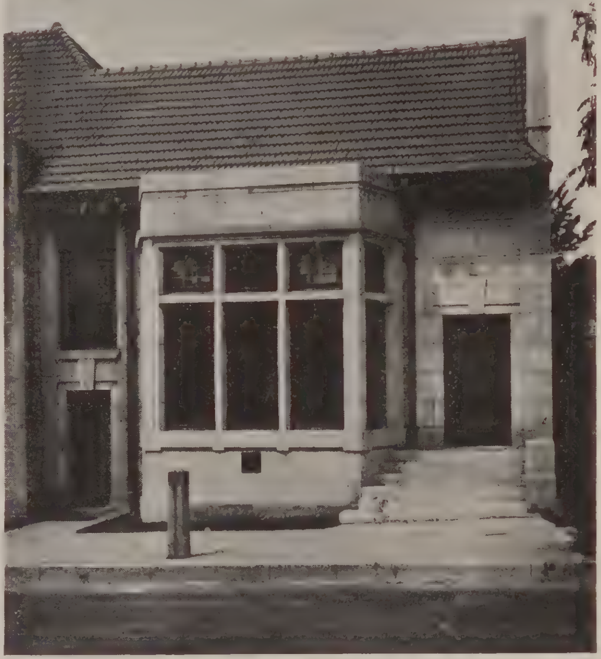
We have successful buildings for other purposes in which the glass areas in the first stories are about equivalent to that of a show window, but in these cases use of skeleton construction is clearly indicated in the stories above. The modern factory of either reinforced concrete or of steel enclosed in masonry affords a typical illustration, and while many of our factories are not beautiful pieces of design, enough are really satisfactory to prove that there is nothing inherently wrong in their requirements from the point of view of architectural fitness. In the shop, however, and especially in the country shop, where the upper stories are occupied as apartments, the walls and windows are necessarily adapted to living conditions, and there is not only a


New Shops Under Old Houses, Baltimore
Este Fisher, Architect


Shop Building at Pinehurst, N. C.
Aymar Embury, II, Architect

BOSTON PUBLIC

change in the system of support, but usually a change in scale as well. Every architect knows that there is nothing harder to overcome than a forced change in scale, although even this does not present an insuperable obstacle to good architecture, as witness the Bowery Savings Bank on 42nd Street, in New York, where the architects changed suddenly but without offense from a banking room height on the ground floor of 40 or 50 feet, to a ceiling height of 10 or 11 feet in the offices of the upper stories. Nevertheless, when it is taken into consideration how difficult it is to manage successfully any change in scale, especially in a two-story building, and how difficult it is to obtain adequate supporting members on the first story, it can be seen that the designers of the small buildings illustrated in this issue of The Forum have done comparatively better than the absolute value of their work would indicate. Where they have been permitted to break up the show windows into small panes by means of muntins of either wood or lead, the result has been very satisfactory from the standpoint of appearance. It would seem that there is a growing tendency to permit some division of the show window, especially in shops which pretend to smartness, such as millinery, book, antique, tea shops and the like. This breaking up is done successfully on the vertical plane by the use of small panes, or on the horizontal plane by planning arcaded fronts of glass and metal as will be described in a later issue. There seems to be no advantage in the unbroken shop window for some other sorts of business. A large show window probably helps the sales of the butcher or the grocer very little, if at all, while on the other hand the dressmaker and the toyshop must be greatly helped by large window displays.



Small Shop at Englewood, N. J.
Aymar Embury, II, Architect

Another and most disturbing element in the design of the small shop is the sign board. It is useless to spend money on a beautifully ornamented frieze and cornice if they are to be covered by enormous sign boards displaying the name of the shop owner. Although the actual value of the sign board is probably very small, it is next to impossible to convince the shop keeper of this. As the use of distinctive emblems is far more serviceable, it is to be regretted that use of this type of sign is on the decline rather than on the increase. The sole survivals are the barber's pole, the druggist's illuminated jars, the three gold balls of the pawnbroker, and the wooden Indian of the cigar store, which last has almost disappeared. In some of the buildings illustrated the architects have made an attempt to leave a space where signs can be affixed without needless unsightliness, and in one or two cases sign boards were furnished by the owner and the use of other signs forbidden. But in most instances the spaces have been ignored, and the signs so badly painted that the effort appears to have been practically wasted.

The small shop, then, whether in the city or the country, appears to offer one of the most difficult problems that an architect can face. In the first place such shops rarely cost enough to make it possible for the architect to look for remuneration anywhere near commensurate with the amount of time spent on their design; in the second, the owners seldom desire well designed buildings; in the third, the problem presents great technical difficulties; and last, if all these difficulties are overcome, the occupant of the shop usually spoils the building after completion by garish painting or atrocious signs. The United Cigar Stores Company, the F. W. Woolworth Company, and the Atlantic & Pacific Tea Company all paint their stores vivid and uniform colors, regardless of the architecture of the buildings which they occupy. This example, set by these highly successful companies, has been widely and disastrously imitated to the further detriment of our shops. We cannot at present see that shop design in itself offers much to encourage the lover of architecture. It is certainly lagging behind the other types of architectural design today and must be lifted by the improved taste of a public which needs to be educated.

The architect's interest in the design of small stores is therefore twofold: First, in the possibility of this field for a more extensive use of architectural service. Second, in encouraging better design of shop fronts for the sake of the general influence which may thus be wielded toward greater public appreciation of good architecture from the æsthetic as well as from the practical point of view.

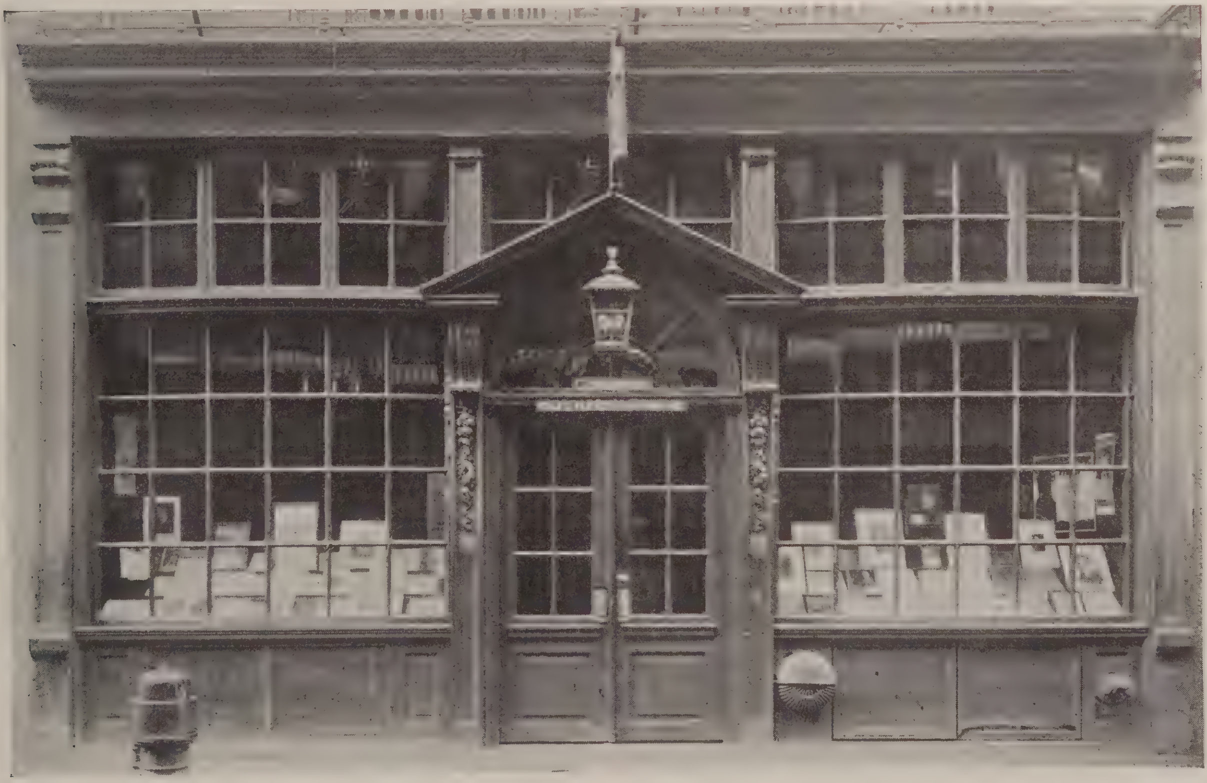
Small Shop Display Windows

NEVER does an architect have two problems to solve which are alike in every detail. In no type of work is this more true than in the designing of shop windows, whether for city centers or country commons. He may have to design shop fronts side by side, one for the sale of trunks and luggage and the other for the merchandising of silverware and jewelry. One shop has to have a low, large show window, in which there will be sufficient space for the display of trunks and handbags or household furniture perhaps, and the other a small, high display window where close examination of the silverware and jewelry for sale may easily be obtainable. Thus from the very nature of the goods offered for sale does scale count in the designing of a shop window.

Nothing adds greater architectural distinction to a small shop window than the use of many panes instead of a single sheet of glass, or else breaking up the straight window plane by proper recessing. This article discusses only the first method, based on early precedent. In the August, 1925 issue of THE FORUM the highly important problem of the glass and metal window will be covered.

The muntins required to hold the small panes of glass in place give not only an appearance of security to the show window but also a structural strength of great value to a successful architectural design. Of course the origin of the small-paned window dates back to the early days, when glass in large sheets was not obtainable. In shops of England and France built during the seventeenth and eighteenth centuries and the first half of the nineteenth it was necessary to use small panes to enclose their show windows. In this case necessity was the mother, not of invention, but of good architectural design. In these later days, so completely accustomed have shop keepers become to the use of a single sheet of glass for the protection of their window displays, that it is very difficult to persuade them, not only as to the practicability of using small panes with strong muntins, but even as to the interesting artistic effect derived from their use. When small panes are used it is highly desirable that they should be carefully scaled to the size of the opening, as may be seen in the illustration of the excellent shop in Boston included here. Only in a few of the cities and towns located on the Atlantic coast are good examples of early shop fronts to be found. Even these are few and far between, and in many cases they have been spoiled through the desire of thoughtless shop keepers to modernize them by making unwise alterations.

Space does not permit here, unfortunately, the inclusion of illustrations of some of the early shop fronts still to be found in Portsmouth, Philadelphia and Charleston. To illustrate the perfect adapt-



Shop Front on West Street, Boston
Parker, Thomas & Rice, Architects

ability of early English and French shop fronts, two illustrations are shown at the bottom of this page. The design of the front of the candy shop in Providence is a clever adaptation of the old Louis XVI shop front preserved in the Metropolitan Museum, New York. A careful study of these two fronts will show the manner in which the design of the old French shop was adapted to the wider front of the shop in Providence. To permit greater window display, the entrance door was recessed. This change, necessitated by modern demands, is not primarily demanded by the design, but it is thoroughly characteristic of the typical shop front of today. The recessing of the entrance door, permitting side views into the front window, has been a development of the last few years.

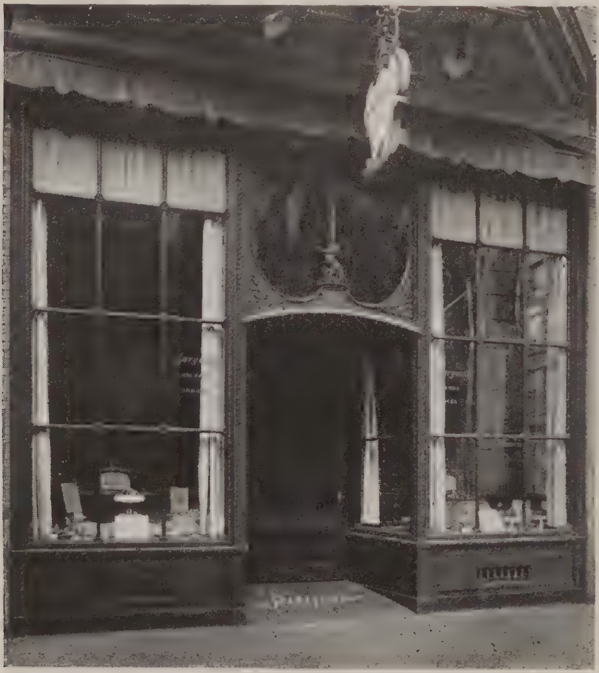
Many examples may now be found where the show windows extend back into the shop, in some cases a third of its depth, before the entrance door is actually reached. This arrangement, which permits an extensive window display, is a contribution of modern merchandising efficiency which has become permanent in the shop and store field.

Not only wood may be used for the muntins of small show windows where small panes are used, for metal also is frequently quite as effective, especially where the metal muntins are painted or otherwise treated to emphasize the divisions of the window. The excellent shop front illustrated on page 103 suggests an admirable arrangement of transoms for the actual show windows.

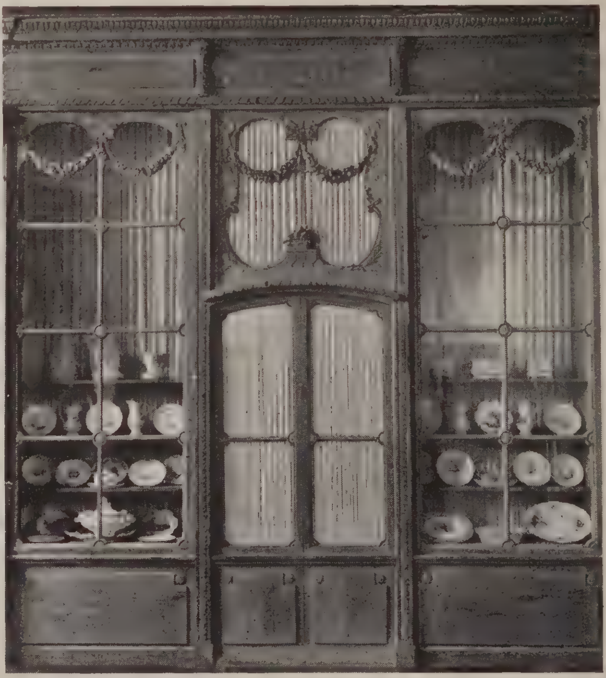
The shop windows of old times were used not only for the display of goods on the window floor and shelves, but also served to furnish light for the shop interiors. Modern shop keepers seem to feel that it is usually essential that the show window should be completely walled in behind to make a background for the goods displayed. From the æsthetic point of view there seems little logic in this modern requirement, as far as small shops are concerned. As a matter of fact, a low partition or railing often forms a sufficient and attractive background for practically any small window display, permitting the passerby to gain pleasant glimpses of the interior of the shop and the various wares offered for sale therein.

It is, however, a slow and difficult task to change the opinions and prejudices gradually formed through the course of years. This task can be undertaken only by the architect who is commissioned to design a small shop front. It is clearly his duty to use every argument and all the persuasive power he has at his command to make clear to the shop owner the tremendous advantage and sales value of a well designed, architectural shop front. The buying public is inevitably drawn to an attractive shop front, no matter what may be the nature of merchandise on sale. The value of this fundamental truth, based on psychological, subconscious reactions, cannot be denied; the only difficulty is to educate the shop keeper to appreciate this fact and take advantage of it.

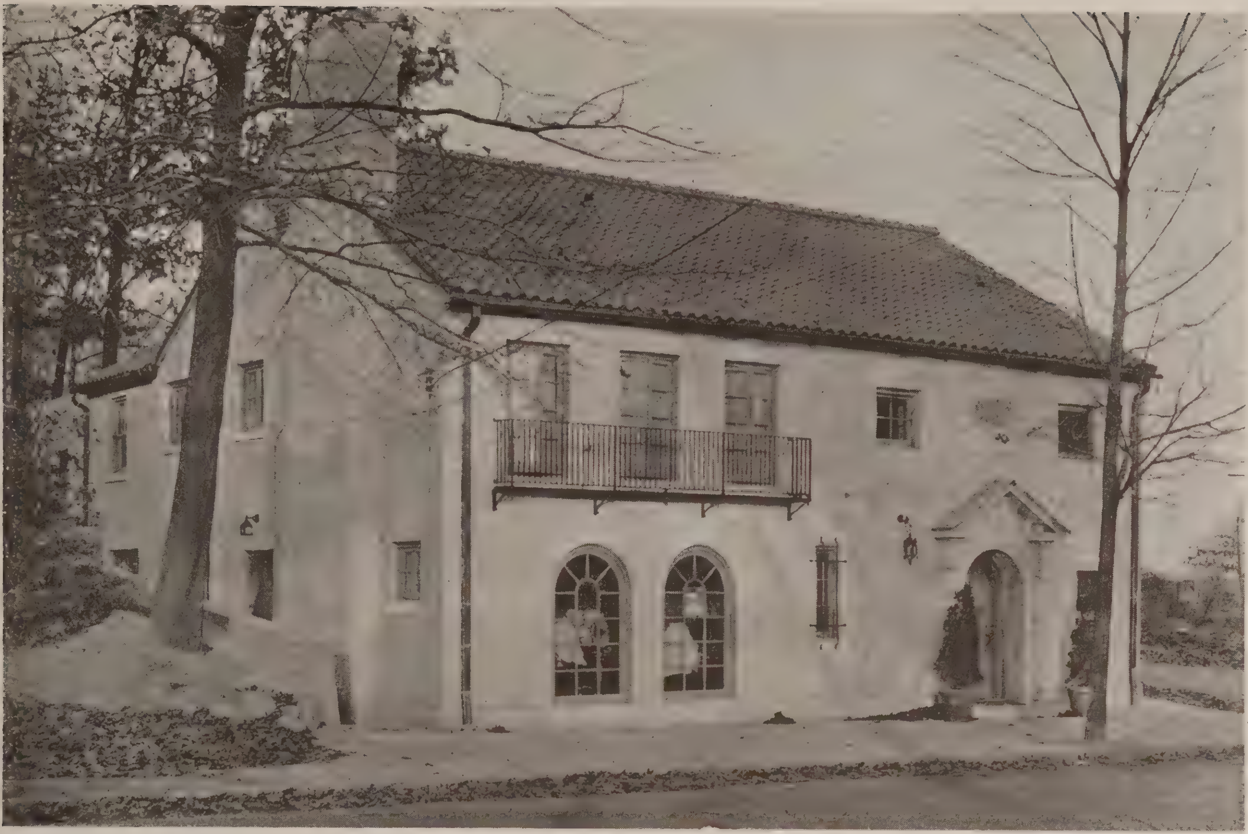
Works on old English and French architecture contain countless illustrations of small shop facades with windows which abound in suggestions which may be easily developed by an architect, and since the attractive arrangement of shop windows is a detail intimately connected with advertising, many of the illustrators who serve advertisers have learned the secret of imparting interest to small shop windows, and their illustrations, in which of course due attention has been given to details of scale, balance and proportion, offer suggestions valuable indeed.



Shop Front in French Style, Providence
Strickland, Blodget & Law, Architects



Old French Shop Front in the Metropolitan Museum, New York



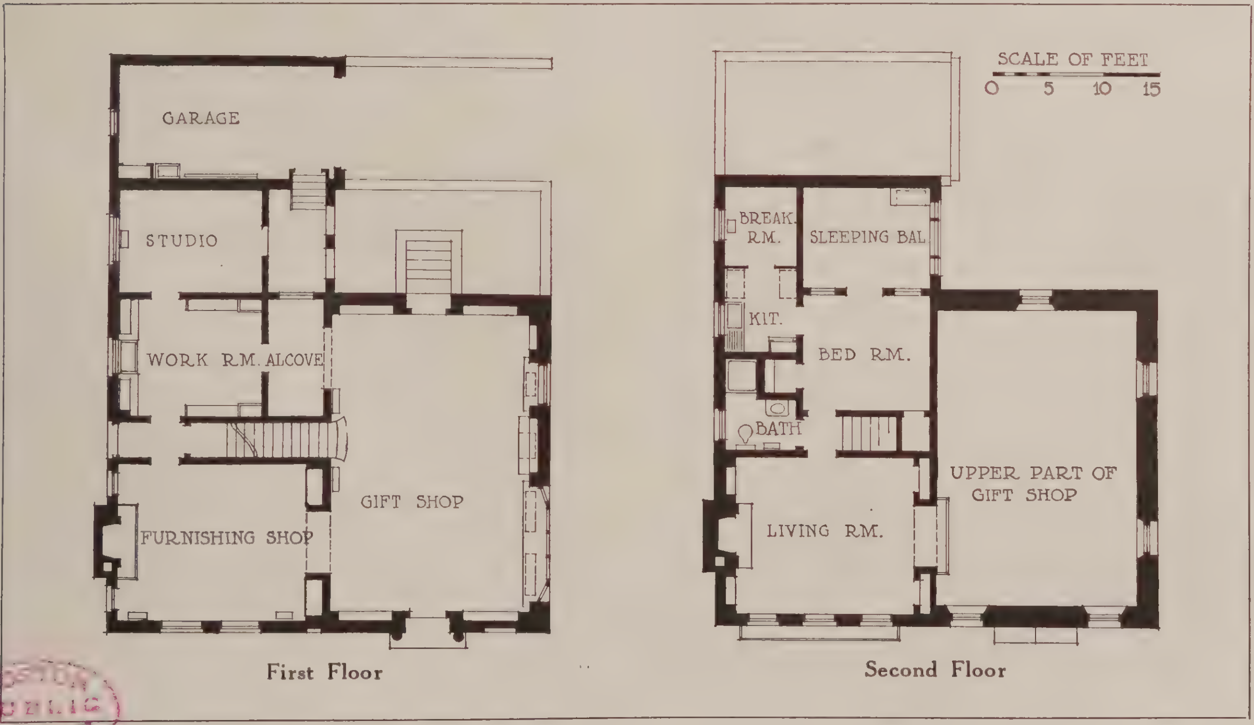
Photos. H. D. Barlow

SMALL ART SHOP AT RIDGEWOOD, N. J.

ALBERT MARTEN BEDELL, ARCHITECT

THIS picturesque little building, designed in the Italian style, is built into the side of a hill, permitting the locating of a small garage at the rear of the building on a higher level. The design of the facade logically suggests or indicates the interior plan.

An interesting arched doorway with cast stone trim forms the main entrance to the shop. At the left are two arched show windows of pleasing proportions, and three long casement windows open *(Outline Specifications, Details and Cost on Next Page)*



First Floor

Second Floor

BOSTON PUBLIC

FORUM SPECIFICATION AND DATA SHEET — 9

Small Art Shop at Ridgewood, N. J.; Albert Marten Bedell, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Rough stucco with white cement on hollow tile. Copper leaders and gutters.

TRIM:
White pine.

ROOF:
Red tile.

WINDOWS:
Wood casements and show windows divided into small lights.

FLOORS:
First floor—linoleum, tile pattern, with felt lining over underflooring; second floor—oak over underflooring, finished with shellac; bathroom—tile wainscoting, including that of shower bath.

(Perspective and Plans on Preceding Page)

HEATING:
Steam heat, open radiators. Service hot water heated by means of gas heater connected with boiler.

PLUMBING:
Enameled iron fixtures. Gas range in kitchen.

INTERIOR MILL WORK:
White wood throughout; birch veneered doors.

STAIRS:
Oak, with silk cord handrail.

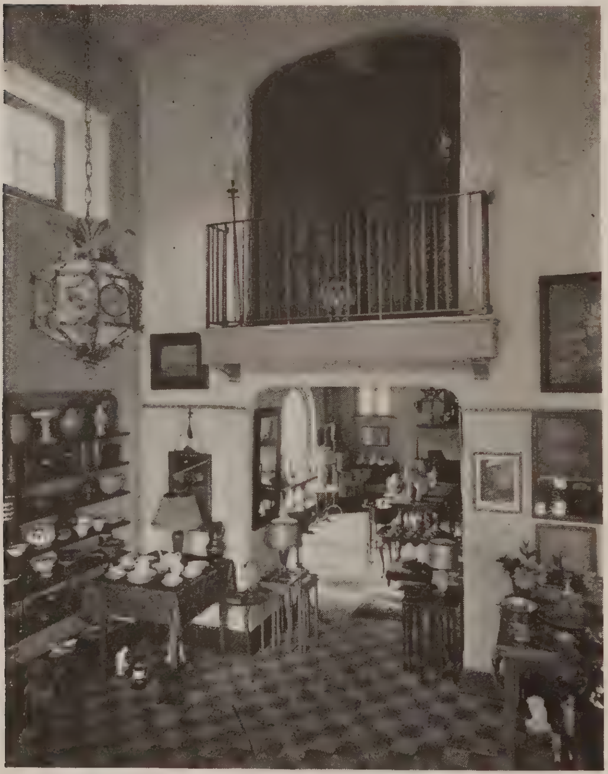
WALL FINISH:
Gift shop portion and living room finished in rough cement; rest of rooms sand-finished plaster.

COST DATA

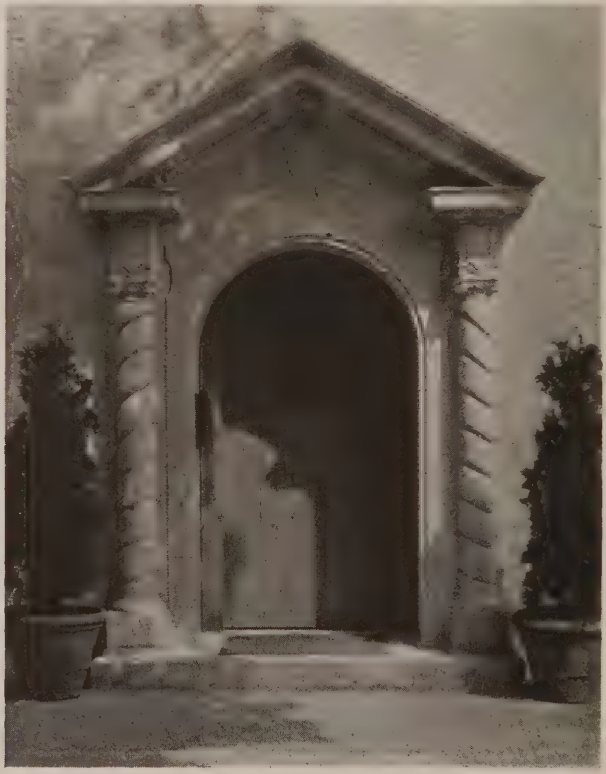
Cost of building, complete, in the year of its completion, 1924.....................$22,000

onto a narrow iron balcony. Small square windows above the entrance door suggest the height of the two-story room within. The Italian character of the design is further carried out by the red tiles of the low roof, the gentle slope of which suggests that of an Italian farmhouse.

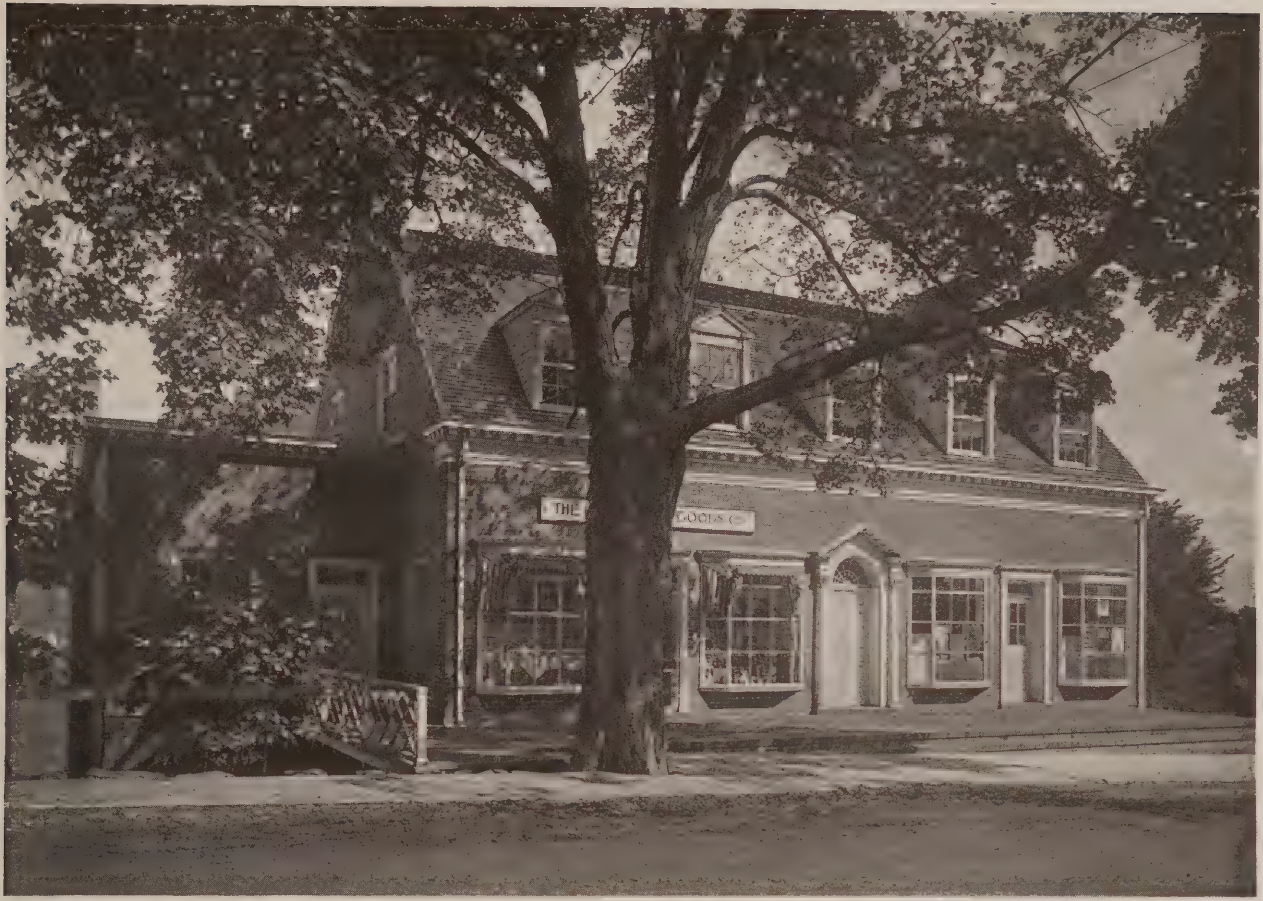
The arched entrance door at the right leads into a large gallery, 18 by 28 feet, which is two full stories in height. At the left is a small one-story room with two arched show windows opening onto the street. From the large gallery a walled staircase leads to a living apartment above. At the rear of the first floor are a workroom, a small studio, and the garage, the latter reached by a short flight of steps from the open loggia, which looks into a small walled garden at the rear of the large gallery. This tiny garden is paved with flagstones and decorated with stone seats, a small fountain and groups of low planting. Into its gray stucco walls are set colored medallions of modern decorative Della Robbia ware.



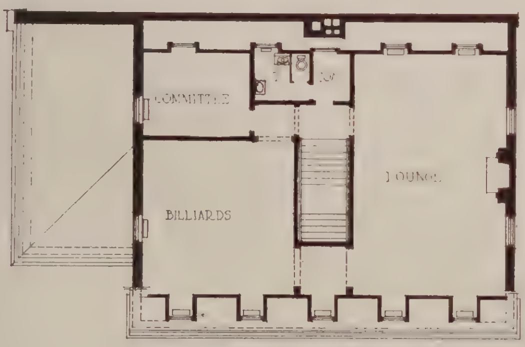
Interior of Shop, Showing Balcony



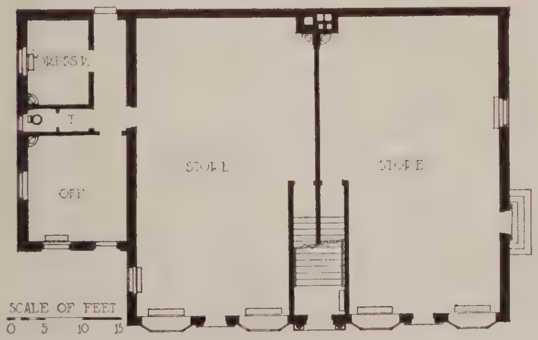
Detail of Main Entrance Door



SHOP BUILDING IN THE COLONIAL STYLE, WATERTOWN, CONN.
ELECTUS D. LITCHFIELD & ROGERS, ARCHITECTS



Second Floor



First Floor

ACCURACY of detail, carefully studied scale and proportion, together with color and texture in the brickwork combine to give charm to this small building. The plan shows two complete stores on the street level. The rooms on the second floor, which is reached by a stairway at the center door on the front of the building, are used in connection with the community building which is located at the rear of the lower level. These rooms include a large living room across one end of the building, connecting by an alcove with a billiard room on the opposite corner, back of which are a committee room, cloak room and toilet. The front elevation consistently indicates the interior plan. Four projecting shop windows and two doorways are grouped on either side of the main entrance door. All of the details,—trim, cornice, dormers, etc.,—are carefully carried out in the Colonial style and painted white, forming a pleasing contrast to the red brick walls and brick platform in front of the building. In one accompanying illustration the entrance to the community building shows at the right. The smaller wing at the left of the building also opens directly onto the street level and contains an office, a toilet and dressing room opening into the small hall, which connects by a few steps with the stage of the auditorium in the rear.

The simplicity of this little building, with its broad

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 10

Shop Building in the Colonial Style, Watertown, Conn.; Electus D. Litchfield & Rogers, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Solid brick walls, 12 inches thick. Interior plastering applied directly to brickwork.

EXTERIOR TRIM:
White wood.

ROOF:
Wood shingles.

WINDOWS:
Double-hung; wood frames and sashes.

FLOORS:
All floors Georgia pine; toilet room, ceramic tile.

(Perspective and Plans on Preceding Page)

HEATING:
Steam, exposed radiators; service hot water heated by separate coal-burning stove.

PLUMBING:
Enameled iron fixtures throughout.

INTERIOR MILL WORK:
Cypress and white wood.

STAIRS:
Wood.

WALL FINISH:
Three-coat plaster, smooth finish throughout.

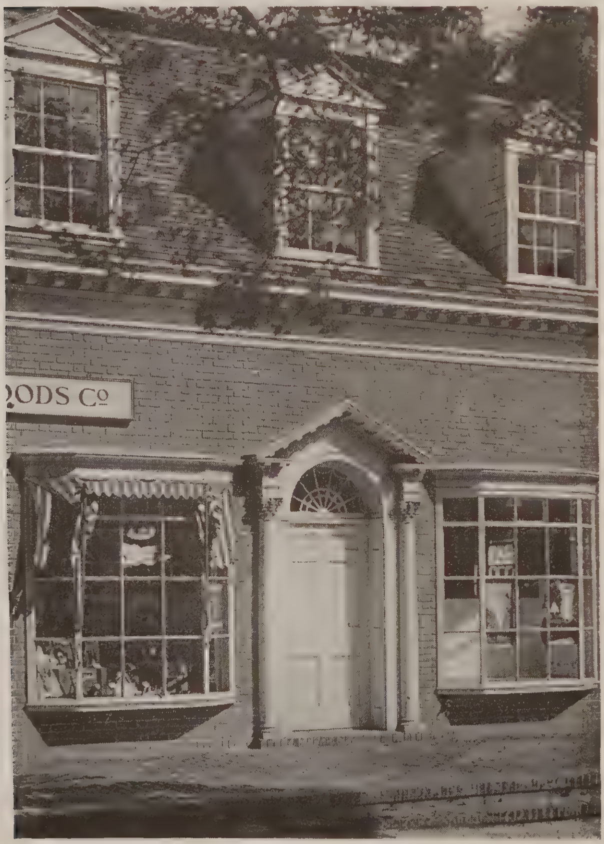
COST DATA

Approximate cost, $40,000 in year of completion, 1916.

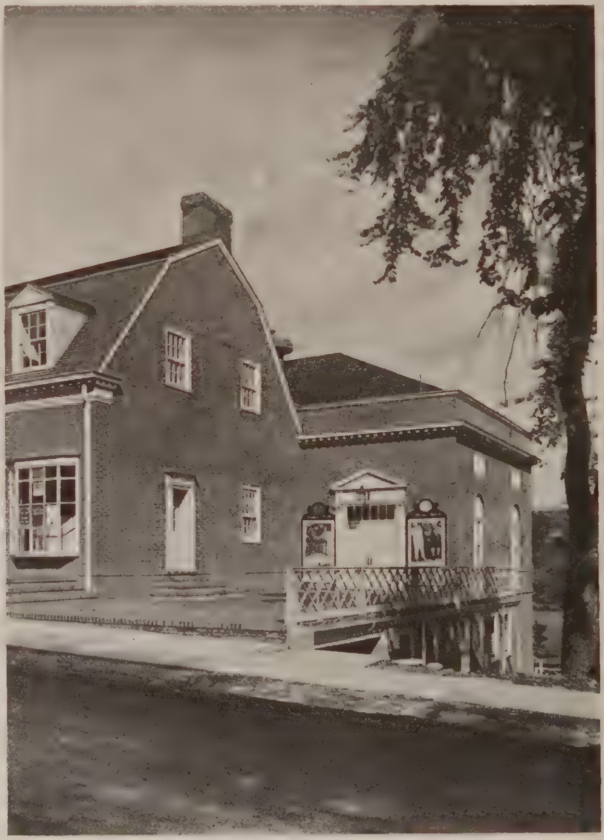
wall surfaces and gambrel roof, renders it a pleasing and successful example of the adaptation of Colonial precedent to modern requirements.

The benefits which follow when care and attention to small details are given to a building are not often as apparent as they are in this instance. As has already been said, great care has been given to scale, and every detail of the building shows skill in the use of ornament. Nothing has been slighted or overlooked, and one of the happiest details is that shown in the cut at the lower right hand corner of this page where the line of the gambrel roof meets that of the cornice of the community building at the rear.

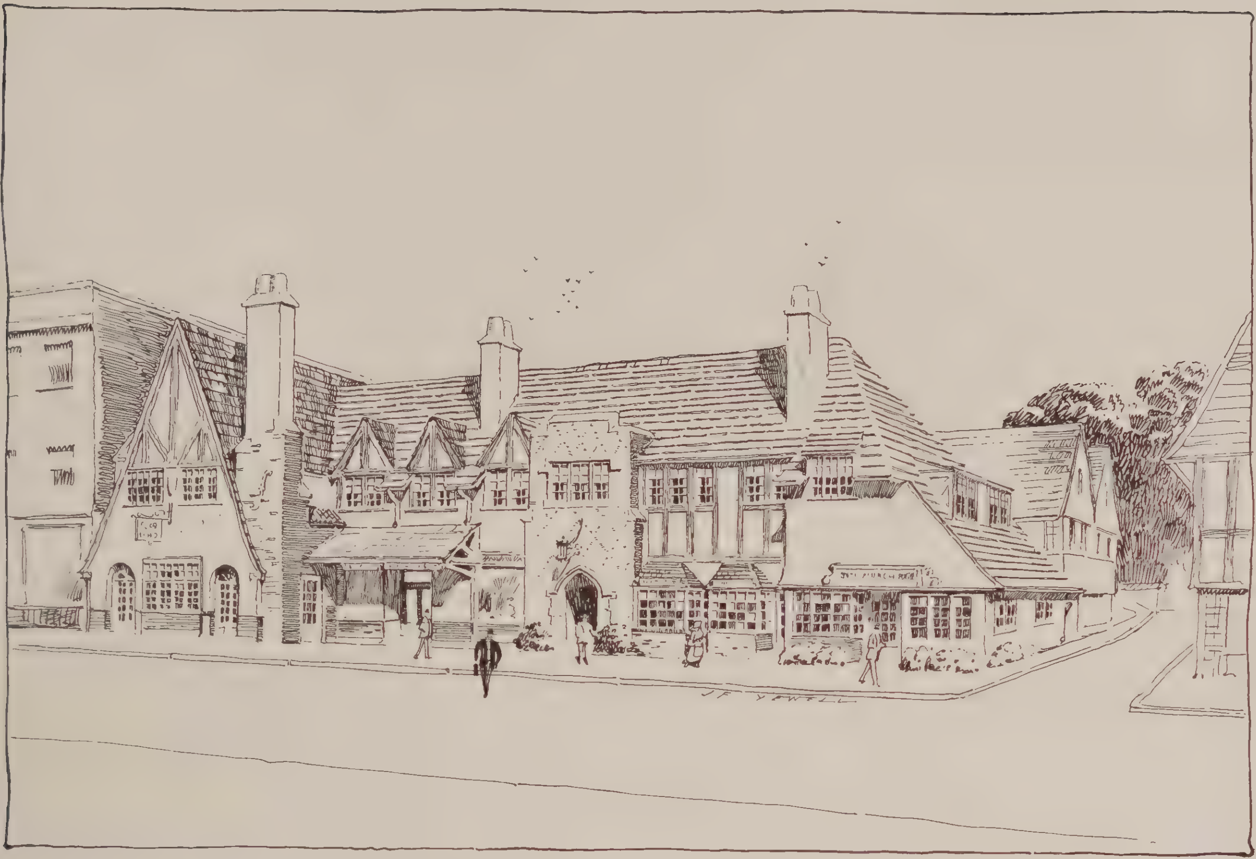
Analysis will show that much of the charm of the building is due to the taste and skill with which the architects have used small panes for the windows and the show windows, and for the transom of the large door which is the main entrance to the community house. Taste has been shown even in the design of the wooden railings or parapets which guard the platforms at each end of the building, that at the right leading to the community house.



Detail of Shop Windows and Door



View Showing Community Hall in the Rear

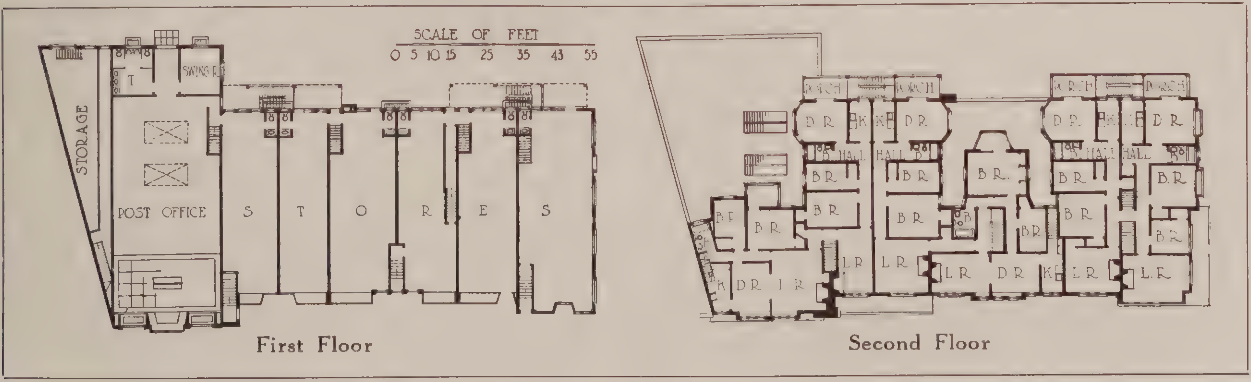


BLOCK OF ENGLISH SHOPS AT UPPER MONTCLAIR, N. J.
FRANCIS A. NELSON, ARCHITECT

ALTHOUGH only a small section of this block of stores and apartments in the English style is as yet finished, from the architect's pen and ink sketch at the head of this page an excellent idea can be obtained of the variety of detail and charm of character which this group will have when completed. The illustration here shows the section already finished, containing the town post office and two shops. The apartments on the second floor are reached by a stairway cleverly located under the large corner chimney at the left of the design, and by a stairway under the arch in this picture. Not only diversity of detail, but also warmth of color emphasize the design of this shop group. The warm toned stucco walls make a pleasant background for the exposed beams which are stained light brown. Brickwork in warm red with white joints gives added structural strength and color value to the base of the building and consistently ties together the foundation and brick chimneys of the structure. Both chimneys have English chimney pots, while variety is obtained through the use of stucco instead of brick for the upper part of the larger chimney. Casement windows, and a vari-colored slate roof still further add to the charm and English character of the design. The sharp pitch of the roof gables and dormers gives a distinctly picturesque quality.

In plan the first floor of the completed section of this village block shows a post office at the left, with two arched doorways and center window. This space, which is about 29 feet wide, extends the entire depth

(Outline Specifications, Details and Cost on Next Page)



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 11

Block of English Shops, Upper Montclair, N. J.; Francis A. Nelson, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Construction—wood frame with brick veneer below and stucco on wire lathing above. Exposed timber work is decorative and not constructional.

EXTERIOR TRIM:
Cypress, stained brown.

ROOF:
Slate, varying shades of purple, gray, red and green.

WINDOWS:
Wood casements, divided into small panes.

FLOORS:
First floor—straight oak, excepting public space in post office where terrazzo floor and border are used. In entrance to stairways, floors are tiled. In bathrooms and toilets, floors are ceramic tile. Second floor—Georgia pine throughout.

HEATING:
Steam with open radiators. Service hot water heated by gas.

PLUMBING:
Enameled iron fixtures; gas range in kitchen.

INTERIOR MILL WORK:
White wood throughout.

STAIRS:
Oak treads and handrail.

WALL FINISH:
Two-coat plaster, rough finished throughout.

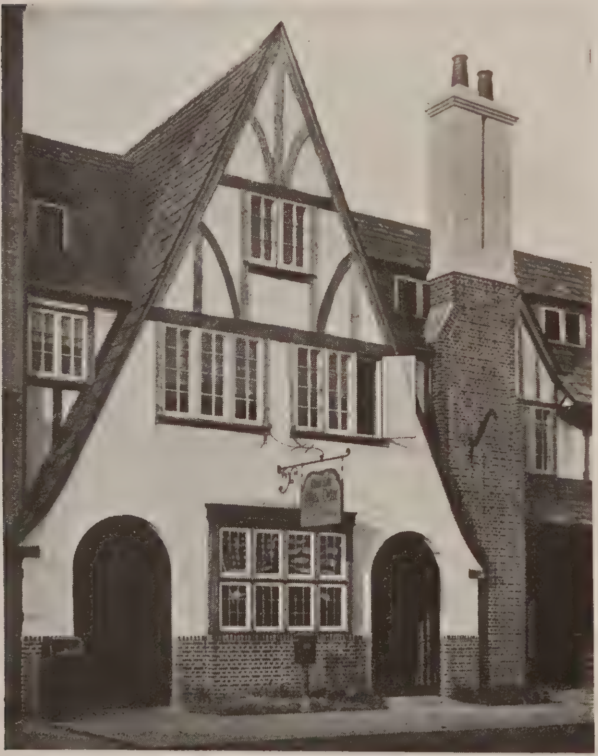
COST DATA

Cost, $43,700 in year of completion, 1921.

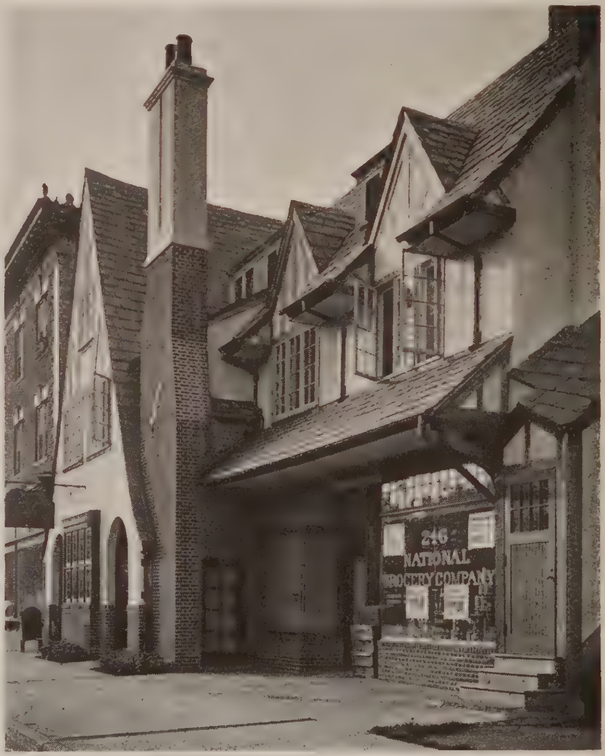
(*Perspective and Plans on Preceding Page*)

of the building, at the rear of which is a large double doorway, with receiving platform at which the mail wagons may unload. At one side of this receiving entry is a good sized toilet and wash room, while at the other end is a mail sorting room. The remaining space on the first floor is occupied by two shops of approximately equal width and depth. On account of the stairway leading to the second floor, the left hand of these two shops has a smaller show window than the shop at the right. Each shop extends throughout the entire depth of the building, with individual lavatory, and access by adjacent stairs to the basement below. The second floor is occupied by three living apartments, each containing a living room, dining room, two bedrooms, kitchenette and bath. Each living room, however small, has an open fireplace. The apartment at the right end of the present building is reached by an outside stairway, to be removed when the block is completed.

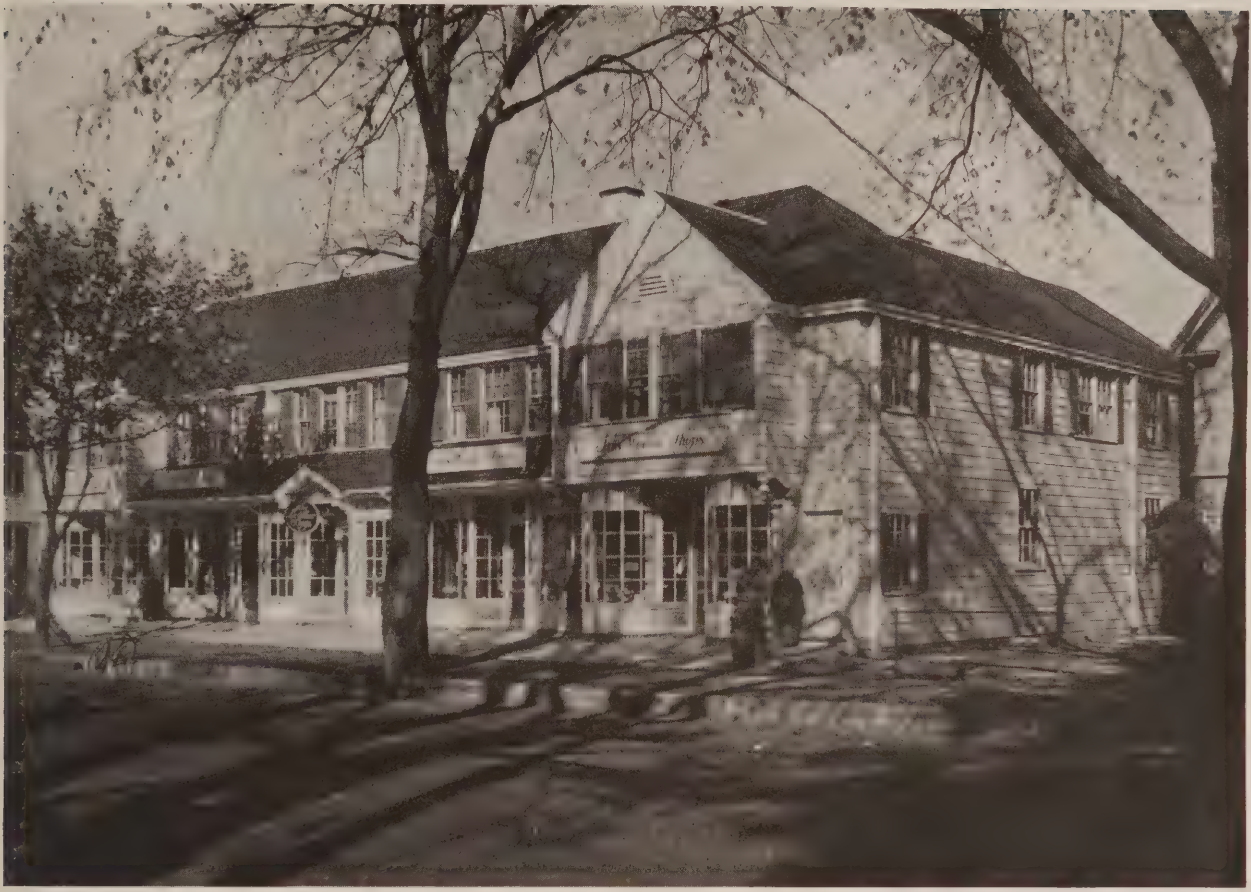
From the consideration of this brief analysis as well as a careful study of the accompanying illustrations and drawings, one can readily appreciate how suggestive and full of inspiration is this unusually picturesque design of a village shop group.



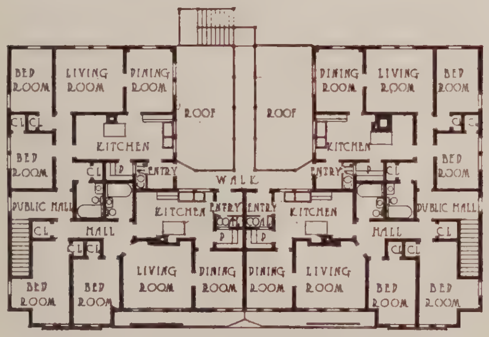
Detail of End of Block



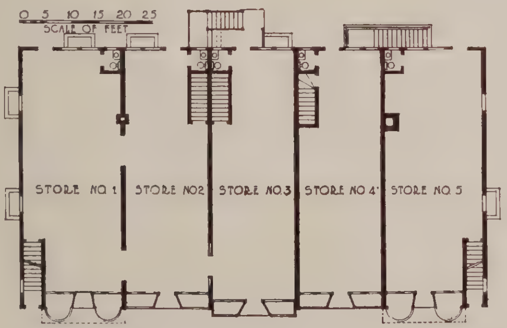
Shops and Apartment Entrances



BLOCK OF SHOPS AT FALMOUTH, MASS.
HUTCHINS & FRENCH, ARCHITECTS



Second Floor



First Floor

ONE of the most interesting examples of country shop designs, executed entirely in wood painted white, is to be found at Falmouth, Mass. In this block an English type of store front design has been combined with early American Colonial detail. Five shops occupy the street floor of this picturesque New England building, and much charm has been obtained through the variation of treatment in balanced design. Projecting bays with bowed shop windows emphasize the ends, between which three shops with straight windows project under a roof.

The center of the design is emphasized by a hooded entrance and slightly projecting shop windows. On the second floor grouped windows indicate the individual shops below. Small panes of glass give scale to all of the windows, and blinds painted green suggest the domestic character of the second story of the building, which contains four apartments. Stairways at either end of the building connect with these second floor apartments, which are also reached by an outside stairway at the rear of the building, giving access across the roof of the center store to service entrances of all four apartments. This center court on the second floor makes it possible for all the rooms of the four apartments to have outside light and ventilation. Opening on this court are located the kitchens of all these four apartments.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 12

Block of Shops at Falmouth, Mass.; Hutchins & French, Architects

OUTLINE SPECIFICATIONS

CONSTRUCTION:
Frame construction with stud walls and concrete foundations; boarding and hand-hewn shingles, laid 10 inches to the weather.

EXTERIOR TRIM:
White pine.

ROOF:
Sloping roofs—cedar shingles, stained green.
Flat roofs—tar and gravel.

WINDOWS:
Wood frames and sashes, double-hung, divided into small bays. Show windows, stationary.

FLOORS:
First floor—maple in 2-inch widths.
Second floor—combed-grain Georgia pine.
Bathroom floors—ceramic tile.

HEATING:
Vapor steam, with open radiators.
Service hot water heated by individual coal heater.

PLUMBING:
Enameled iron lavatories and bath tubs, soapstone sinks and laundry trays; hot water boiler in each kitchen, connected with waterback in coal range.

INTERIOR MILL WORK:
North Carolina pine throughout; birch veneer doors second floor.

STAIRS:
White pine with oak treads.

WALL FINISH:
Three-coat smooth finish plaster painted, in shops; wallpaper in principal rooms of apartments.

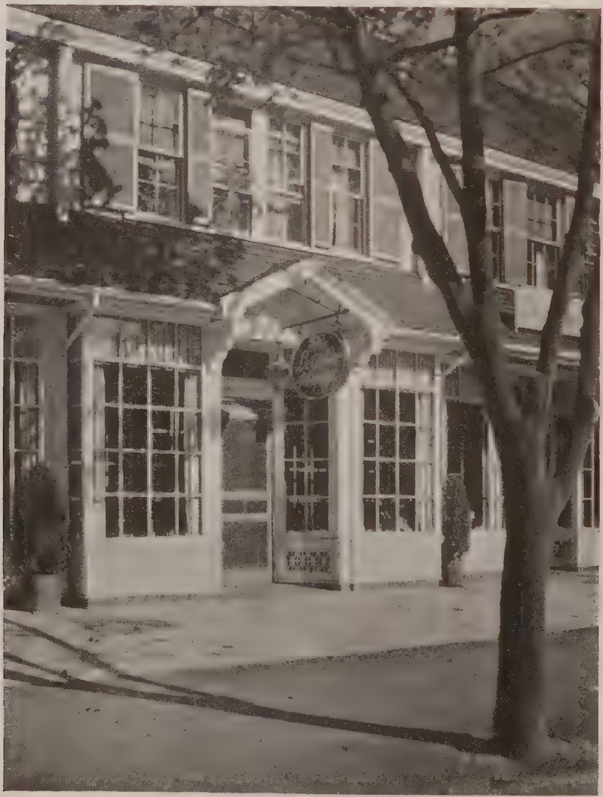
(*Perspective and Plans on Preceding Page*)

COST DATA

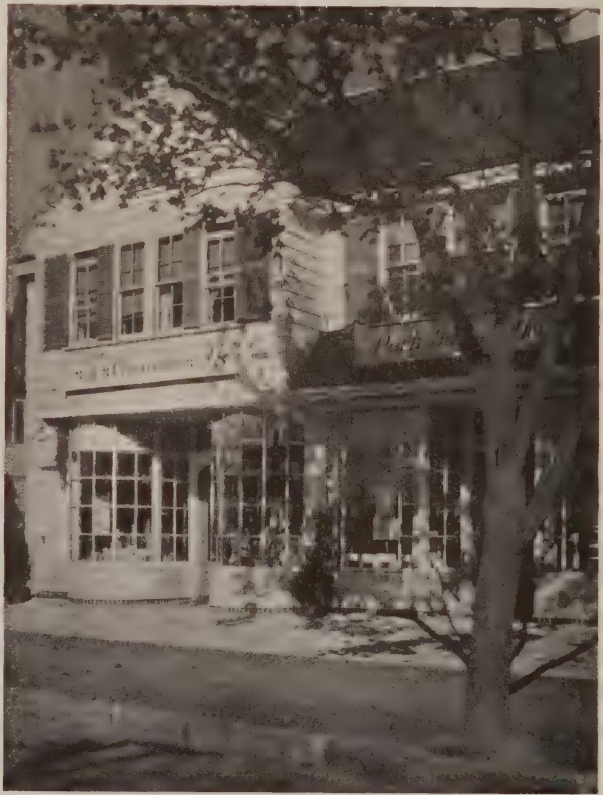
Approximate cost, $42,000, at time of completion, November, 1922.

THIS shop and apartment group is of striking excellence in several respects, two being its being designed to look well from all points of view and its provision for the signs which shop keepers everywhere seem to think necessary. In almost all villages or small towns there are shop and apartment buildings or structures of other kinds having fronts which are presentable enough but with sides of raw, crude brick and with two- or three-story verandas across the rears, all this rendering the buildings blots on the landscape.

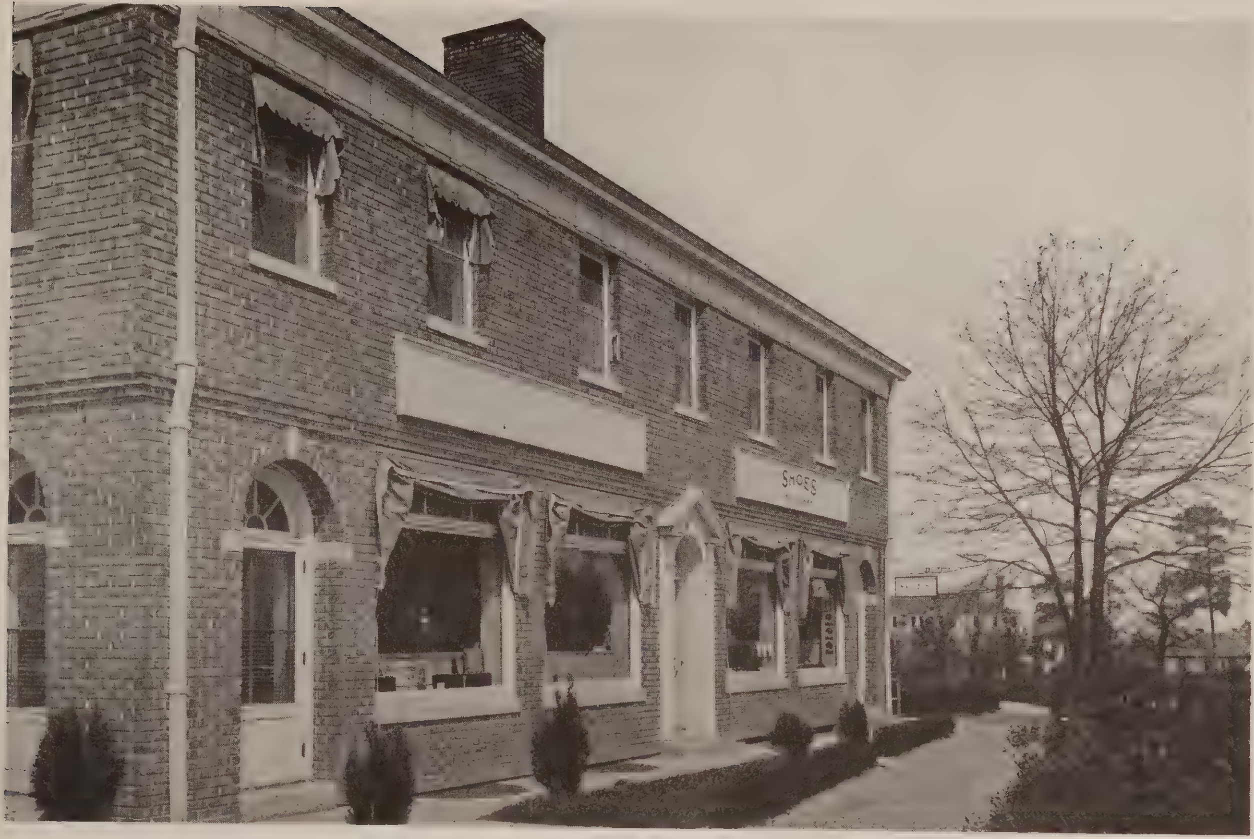
Here too the signs of individual shop keepers have been so managed that they rather add to than detract from the group's architectural appearance. Much has been done by having permanent sign boards well designed and carefully lettered.



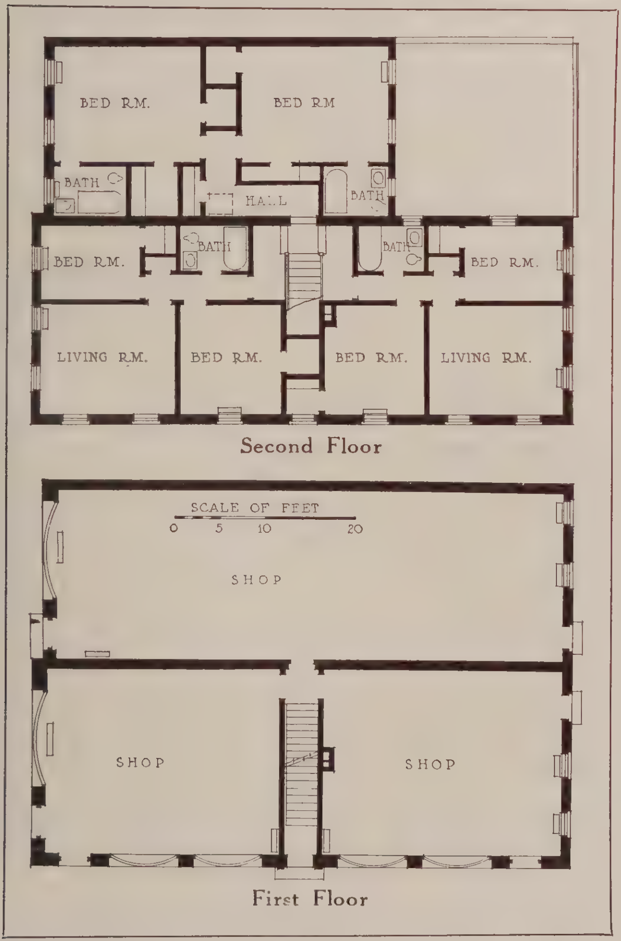
Detail of Center Shop



Detail of End Shop and Bay



ONE OF TWO STORE BUILDINGS IN THE COLONIAL STYLE AT PINEHURST, N. C.
AYMAR EMBURY, II, ARCHITECT



Second Floor

First Floor

AT Pinehurst, N. C., is located an interesting store building in which red brick and white Colonial details have been successfully combined. The plan shows an oblong building, 60 feet long by 43 feet deep. Two stores practically square in shape occupy the front of the building, each of these stores having two show windows and an entrance door. At the rear of these shops, opening on a side street, is a third store extending the entire length of the building, and about 19 feet wide. This store has a single show window and its own entrance door.

A center door, between the two front shops, leads to a stairway by means of which the apartments on the second floor are reached. Under this stairway steps lead down to the basement of the building, which is accessible to all three of the stores, as may be seen on the plan. There is also an outside entrance to this basement. On the front elevation, the two end doorways opening into the shops have arched tops with key blocks. The shop windows themselves were originally intended to be divided into small panes of glass, but this detail of the design was changed by the owner at the time the building was built, and to meet the demands of the store keepers single sheets of plate glass replaced the small panes specified. The center door shows a careful reproduction of Colonial detail, pilasters, arched openings and broken pediment, giving importance to this center feature of the building. Two long white panels to be used as sign boards were placed above the groups of windows.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 13

Two Store Buildings in the Colonial Style at Pinehurst, N. C.; Aymar Embury, II, Architect

OUTLINE SPECIFICATIONS

CONSTRUCTION:
Brick walls, with frame construction. Interior walls, stud and wood lath with plaster over.

TRIM:
White wood.

ROOF:
Slate roof on store building at Pinehurst.
Tar and gravel on shop at Englewood.

FLOORS:
Straight oak on first floor; Georgia pine second floor; tile in bathrooms.

WINDOWS:
Wood double-hung frames and sash; plate glass show windows.

(*Perspective and Plans on Preceding Page*)

HEATING:
Steam heat; free-standing radiators.

PLUMBING:
Enameled iron fixtures.

INTERIOR MILL WORK:
White wood throughout.

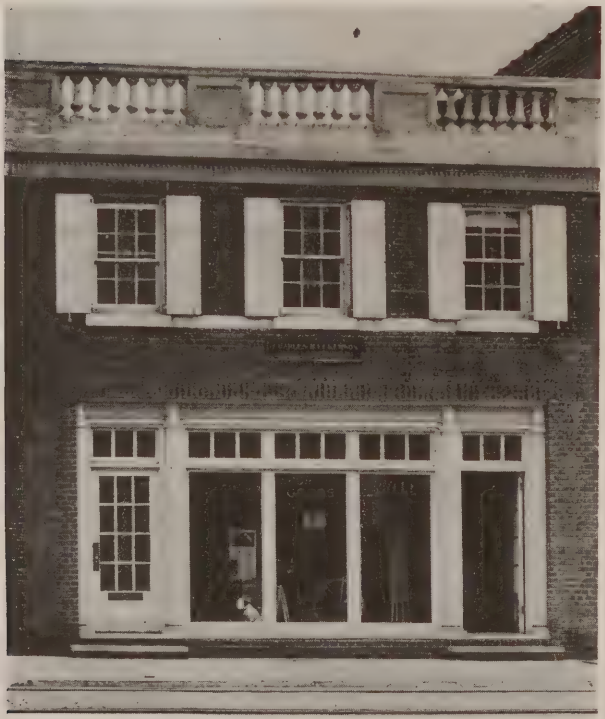
STAIRS:
Wood throughout.

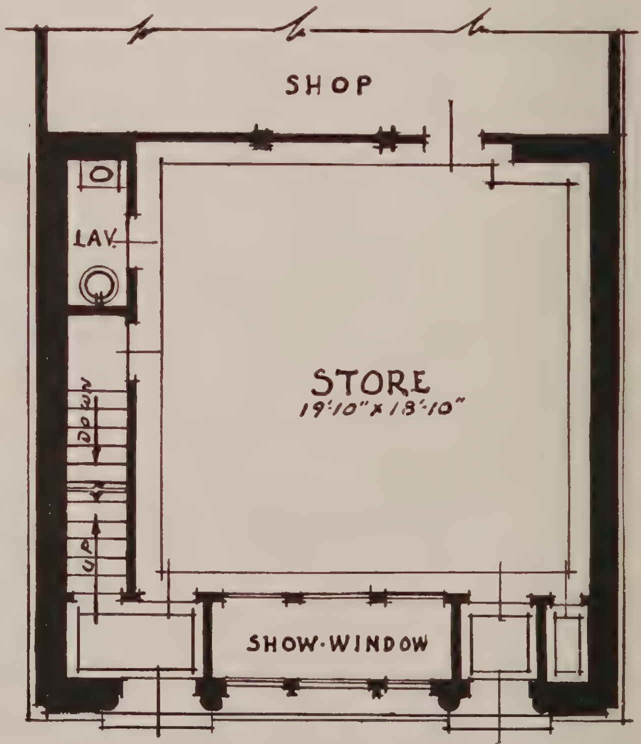
WALL FINISH:
Three-coat plaster, eggshell finish.

COST DATA

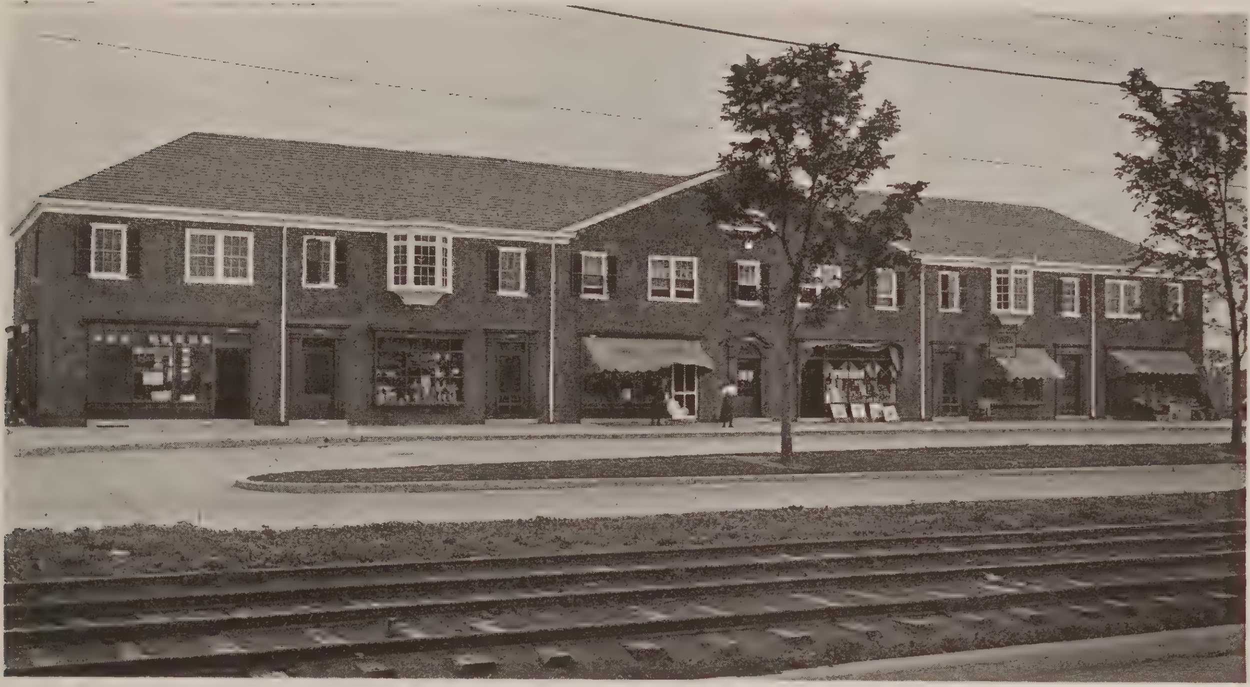
The store building at Pinehurst, completed in 1924, cost 25 cents per cubic foot. Actual cost of the bicycle shop building at Englewood, completed in 1914, was $4,500.

SEVERAL years ago Mr. Embury designed for a bicycle shop in Englewood a small building, which shows in a remarkable way what can be done in a small store facade at a cost no greater than that of the typical ugly store front designed by the local contractor or carpenter, for a small town shop building. The charm of this little building is due to the quiet refinement and symmetry of design. Three windows of equal size balance on the second floor the group of doors and show windows on the first floor. The end doors, which lead into the shop and to the stairway to the apartments above, are equal in width to the windows on the second floor. The marble sills and string courses under the second story windows pleasingly repeat the simple cornice above. The balustrade, divided by piers into three panels, adequately finishes the facade above the cornice. It is hoped that this carefully studied design may serve as an inspiration to architects facing the problem of how to give an inexpensive store building true architectural charm and character. At a moderate cost, the building is dignified and distinguished.





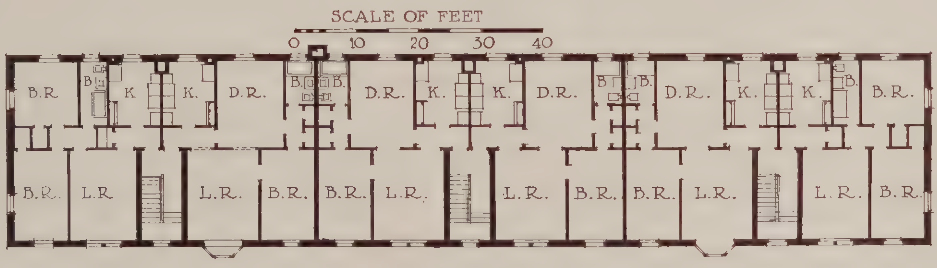
Bicycle Shop, Englewood, N. J.



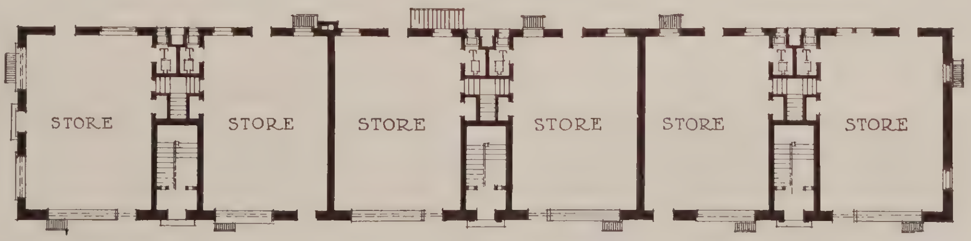
A SIX-STORE BUILDING AT YORKSHIP VILLAGE, N. J.
ELECTUS D. LITCHFIELD & ROGERS, ARCHITECTS

THE problem of small store architecture for a country town has been successfully solved in these three buildings in Yorkship Village. The long, low building illustrated here shows the balanced design in which these shops with apartments above have been carefully worked out. The combination of Colonial details with Harvard brick produces a pleasing, old time atmosphere. The charm of the details of the store fronts and entrances is somewhat obscured by the use of dark instead of white paint. The trim of the several windows on the second floor, together with the cornice and leader pipes, is strongly delineated by the use of white paint. Had the owners consented to the use of white paint for the trim of the first floor, a more pleasing consistency and character would have been given to the whole design. Dark paint was probably demanded for practical requirements. However, this unavoidable treatment of the shop windows and entrance doors cannot entirely destroy the charm of this long, low building. The scale and arrangement of the shop windows with their small panes of glass are unusually good, showing the possibilities of using old English and early American shop fronts in modern store buildings. Four of the shops show individual doors, combined with slightly projecting windows, while the remaining stores of the group have indi-

(Outline Specifications, Details and Cost on Next Page)



Second Floor



First Floor

FORUM SPECIFICATION AND DATA SHEET — 14

A Six-Store Building at Yorkship Village, N. J.; Electus D. Litchfield & Rogers, Architects

OUTLINE SPECIFICATIONS

CONSTRUCTION:
Solid brick walls, 12 inches thick. Interior plastering applied directly to brickwork.

TRIM:
Arkansas pine.

ROOF:
Slate.

FLOORS:
Georgia pine, throughout.

WINDOWS:
Wood, double-hung; sashes divided into small panes.

(*Perspective and Plans on Preceding Page*)

HEATING:
Steam heat; exposed radiators.

PLUMBING:
Enameled iron fixtures.

INTERIOR MILL WORK:
Arkansas pine.

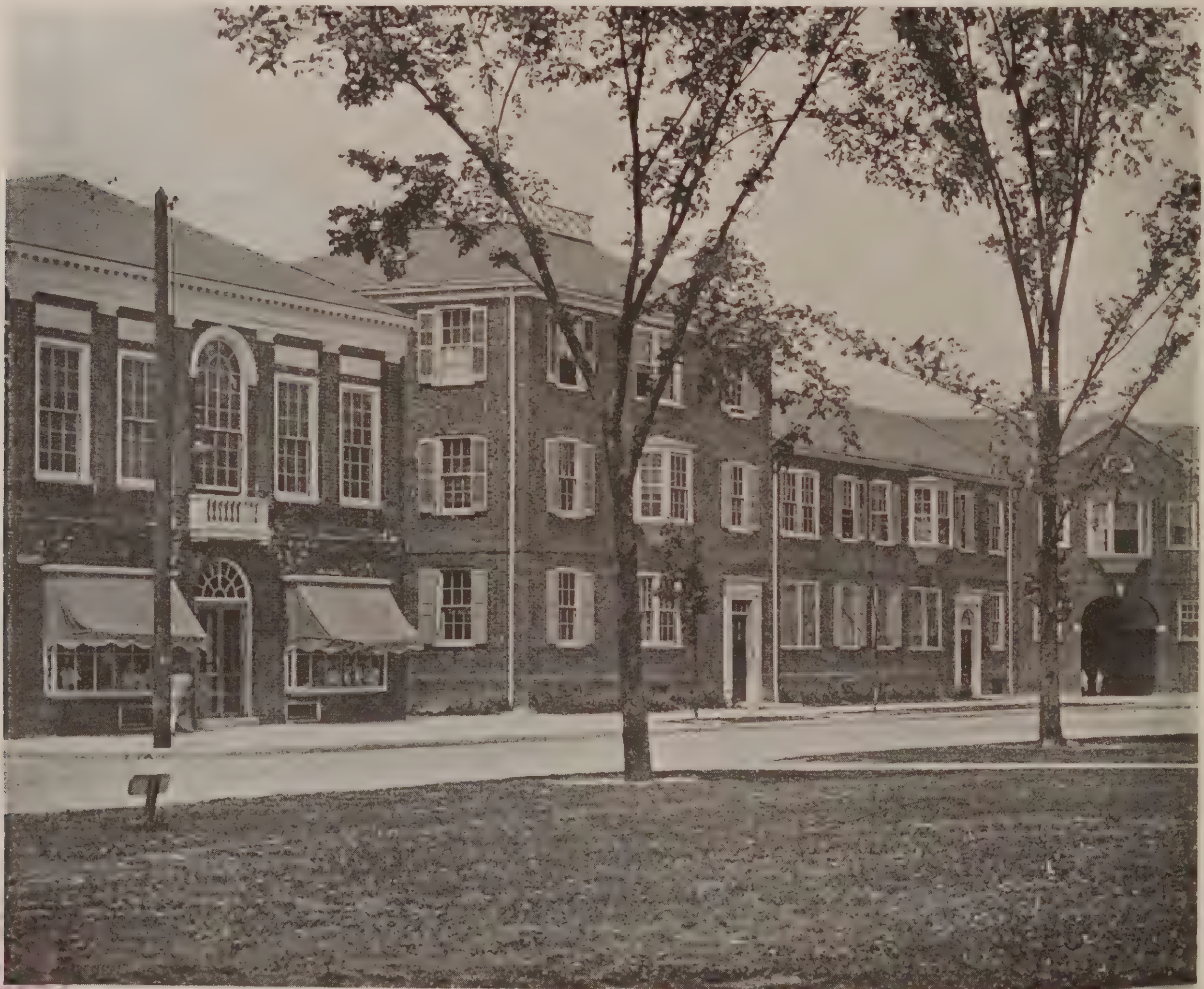
STAIRS:
Wood.

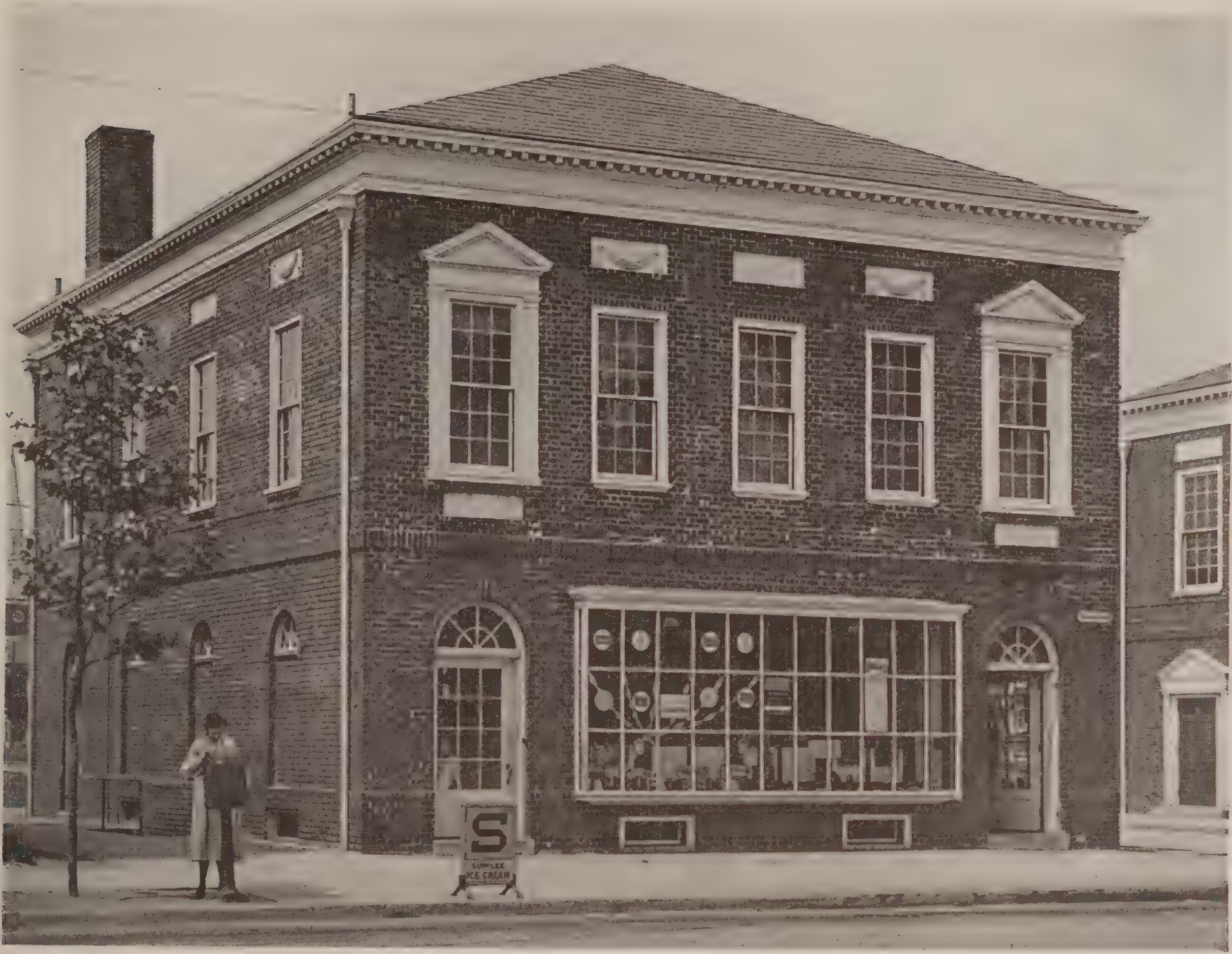
WALL FINISH:
Three-coat plaster, smooth finish throughout.

COST DATA

Approximately 45c per cu. ft. at time of completion, November, 1918.

vidual doors with Colonial trim. Balancing these doors are similarly treated openings which lead to stairways, connecting with the apartments on the second floor. The center door in the block is treated more elaborately with a rich leaded glass transom and broken pediment above. This center door also leads to a stairway connecting with the apartments above. The entire design is broken into five bays, each one of which is a well studied and balanced design in itself. A low, wide sweeping pediment with half-moon window emphasizes and gives distinction to the center bay of the design. This shop and apartment building adds materially to the unusually great architectural interest of Yorkship Village.



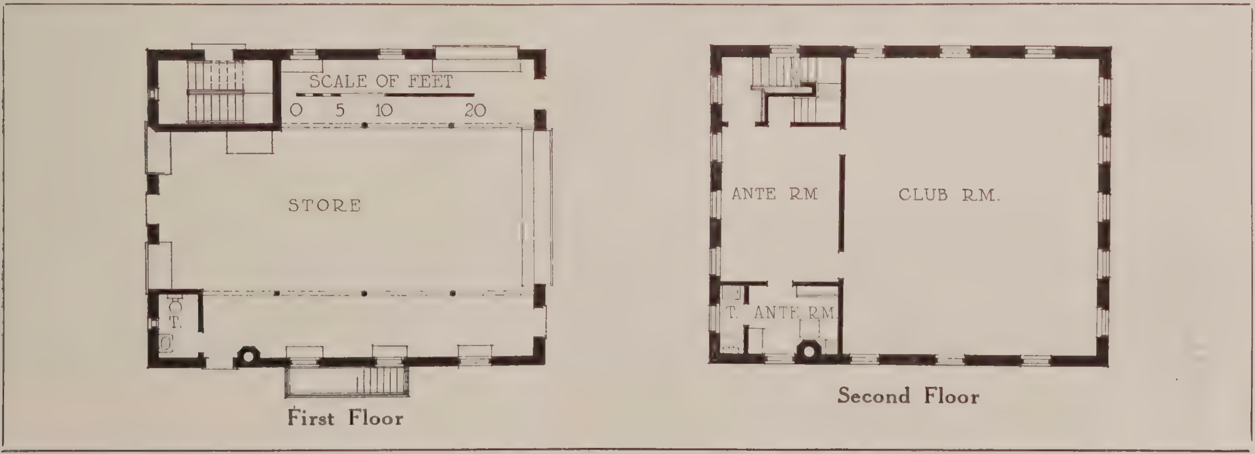


TWO SHOPS AT YORKSHIP VILLAGE, N. J.
ELECTUS D. LITCHFIELD & ROGERS, ARCHITECTS

DESIGNED in a simple and pleasing adaptation of the Colonial style, these two individual shop buildings might well have been designed by Samuel McIntyre, and built in Salem 150 years ago.

Although they are similar in size and construction, the buildings differ enough in design to justify individual analysis and discussion. One building shows a single large shop with an extensive center window flanked by arched entrance doors on the street front. Access to a lodge or club room on the second floor is had by means of an entrance door and stairway at the rear corner of the building on the side street. The plan of the floor shows a toilet in the rear corner, and on the ground floor a rear door for delivery purposes opening into an alley. The cellar of the building is reached by means of outside steps at the rear of the building, as well as by a short stairway covered by a trapdoor from the shop itself. The corner stairway also leads down to the cellar, so that half of this floor can be used for storage purposes for the lodge and half for the shop.

(Outline Specifications, Details and Cost on Next Page)



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 15

Two Shops at Yorkship Village, N. J.; Electus D. Litchfield & Rogers, Architects

OUTLINE SPECIFICATIONS

CONSTRUCTION:
Solid brick walls, 12 inches thick. Interior plastering applied directly to brickwork.

TRIM:
Arkansas pine.

ROOF:
Slate.

FLOORS:
Georgia pine, throughout.

WINDOWS:
Wood, double-hung; sashes divided into small panes.

(*Perspective and Plans on Preceding Page*)

HEATING:
Steam heat, exposed radiators.

PLUMBING:
Enameled iron fixtures.

INTERIOR MILL WORK:
Arkansas pine.

STAIRS:
Wood.

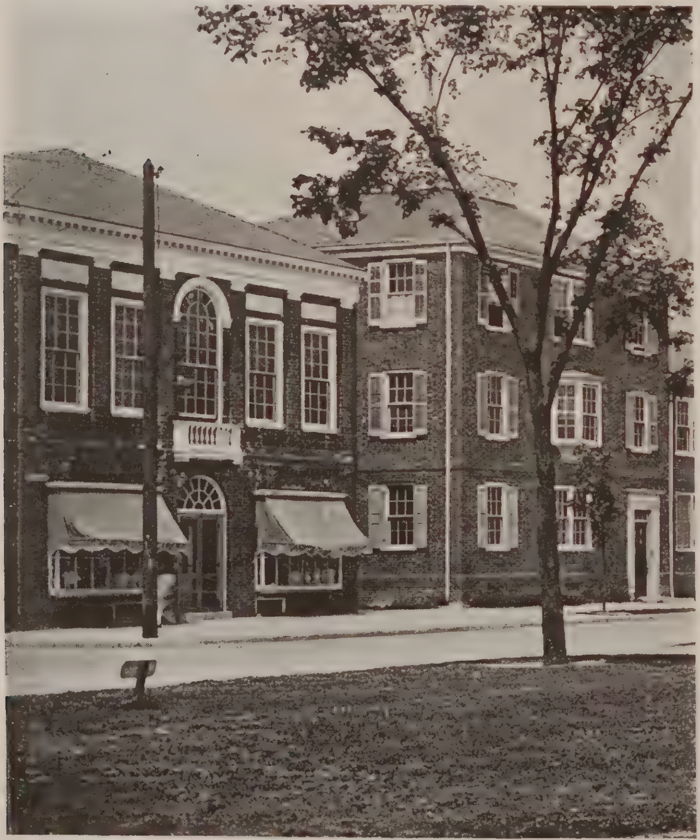
WALL FINISH:
Three-coat plaster, smooth finish, throughout.

COST DATA

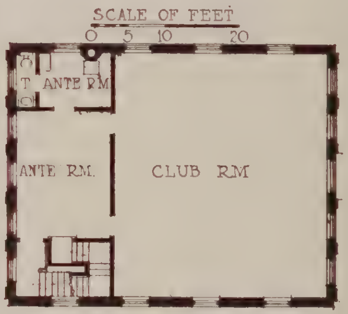
Approximately 45c per cu. ft. at time of completion, November, 1918.

The second shop building is also 36 by 45 feet, and shows a plan much similar to that just described, with the difference that the front facade has large arched entrance doors in the center flanked on either side by projecting show windows. The stairways and toilets in this building are located as are those in the other store building. In each plan there is no direct connection from the shop on the main floor with the corner stair halls, which are shut off by fireproof brick walls and provided with iron stairs and fireproof doors. In each building the corner stairway acts as an enclosed fire escape for the lodge or club room on the second floor. A narrower continuation of each of these stairways runs up to an open gallery for the low rear rooms on the second floor of each building. These small rooms under the gallery are designed on the plan as anterooms and coat rooms.

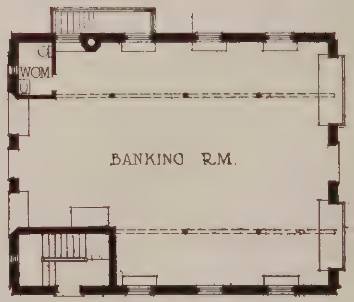
The exterior of each of these buildings is built of red Harvard brick, laid up in Flemish bond, combined with wood window frames, sashes and door trim, carried out in the Colonial style, painted white.



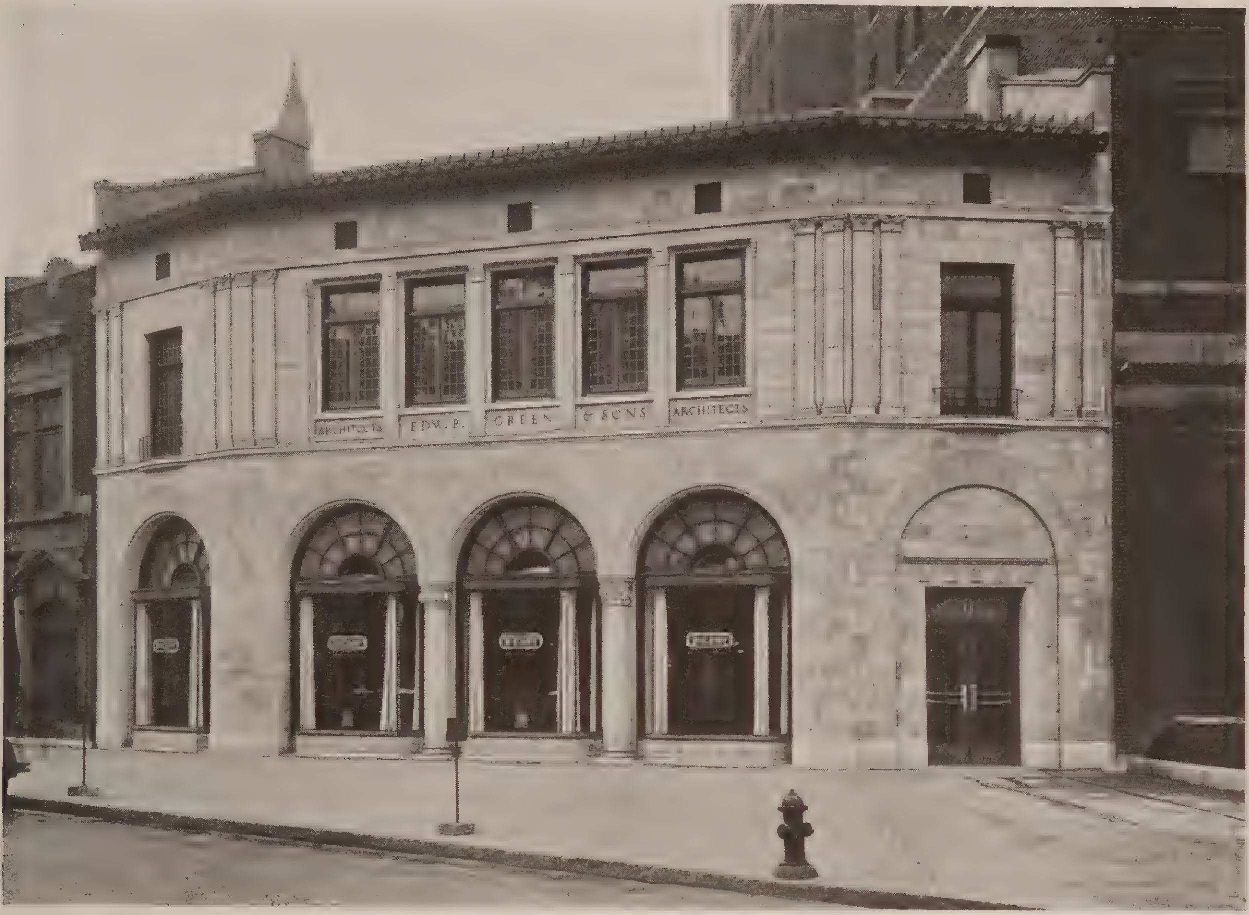
Alternate Types of Store Buildings



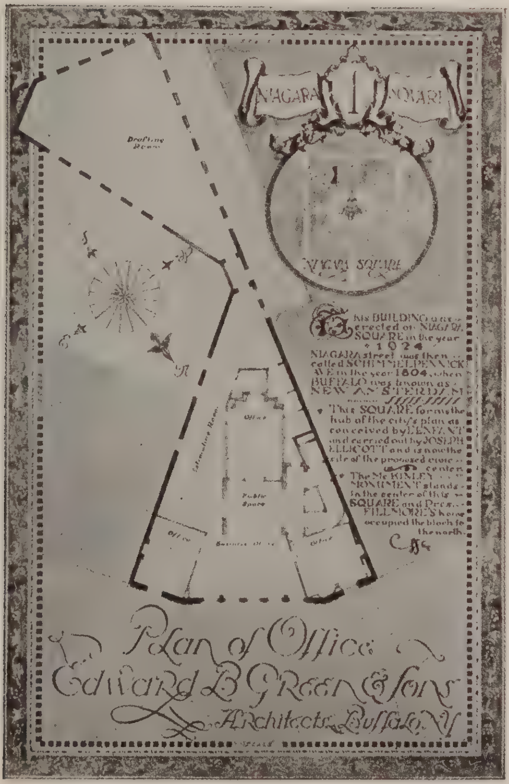
Second Floor



First Floor



SHOP AND OFFICE BUILDING IN BUFFALO
EDWARD B. GREEN & SONS, ARCHITECTS


NIAGARA SQUARE
Drafting Room
NIAGARA SQUARE
This BUILDING was erected on NIAGARA SQUARE in the year 1924
NIAGARA street was then called SCHIMMELPENNICK AVE in the year 1804, when BUFFALO was known as NEW AMSTERDAM
This SQUARE forms the hub of the city's plan as conceived by L'ENFANT and carried out by JOSEPH ELLICOTT and is now the site of the proposed civic center
The McKINLEY MONUMENT stands in the centre of this SQUARE and Pres. FILLMORE'S home occupied the block to the north.
Office
Public Space
Plan of Office
Edward B Green & Sons
Architects Buffalo N.Y.

Plan of Offices on Second Floor

THIS little building, recently completed, shows an interesting use of Florentine Renaissance detail executed in stone. The Italian arcade is well adapted to the requirements of American store buildings, permitting a logical and consistent treatment of the large display windows so essential in modern shops. This use of the arcade, characteristic of Italian Renaissance architecture, was first used several years ago in two large store buildings in New York, designed by McKim, Mead & White. In this shop in Buffalo the arches are sufficiently large to serve as show windows and at the same time are kept in scale with the rest of the design. The columns which support the arches are purposely heavy, so that the arches above may appear to be adequately supported. Pointing the voussoirs of the arches is a typically Florentine feature which gives much individuality to the design. In the window treatment above the arches a concession is made to the necessity of properly lighting the architects' offices on the second floor. The end windows, flanked by double pilasters in low relief, are more consistently Italian, with their flat arched heads and low iron balustrades, than are the five center windows. However, this free handling of the Italian style is characteristically American, and pleasing in effect. Small square openings break the severity of the high frieze below the overhanging tiled roof.

The well proportioned end bays are worthy of careful study. The varying detail used in the several pilaster caps

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET—16

Store and Office Building at Buffalo; Edward B. Green & Sons, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Faced with Indiana limestone, backed with brick; steel and reinforced concrete floor for basement; wood joists for second floor; wood partitions, covered with burlap, on second floor.

ROOFS:
Red tile on slopes; tar and gravel elsewhere.

WINDOWS:
Metal frames on first floor; wood casements with leaded glass.

FLOORS:
Wood joist construction, supported on masonry; finished floors, oak.

(Perspective and Plans on Preceding Page)

HEATING:
Steam, with thermostatic control.

PLUMBING:
Porcelain fixtures.

INTERIOR MILL WORK:
Birch, stained.

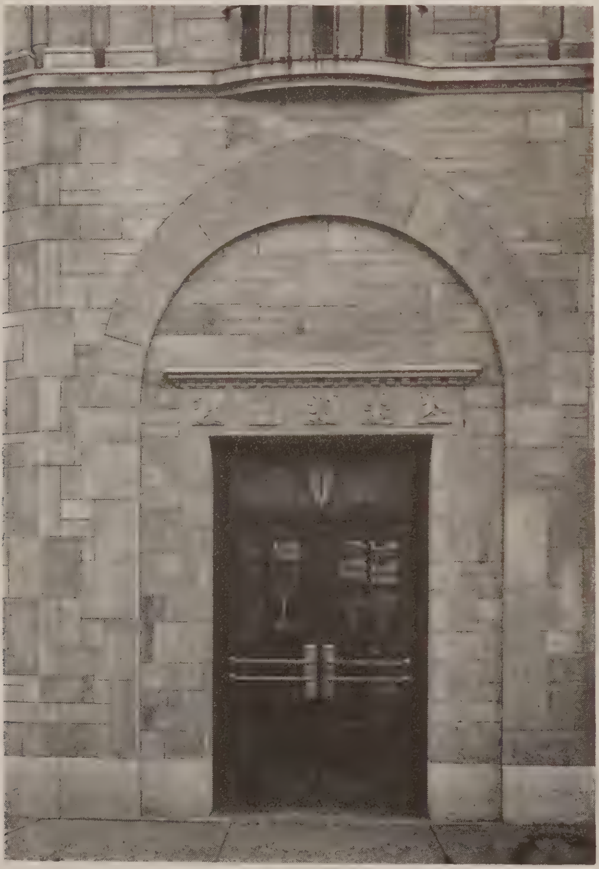
STAIRS:
Fireproof construction.

WALL FINISH:
On first floor and stair hall, three-coat plaster, Partition on second floor, heavy wood sheathing over studs, covered with burlap.

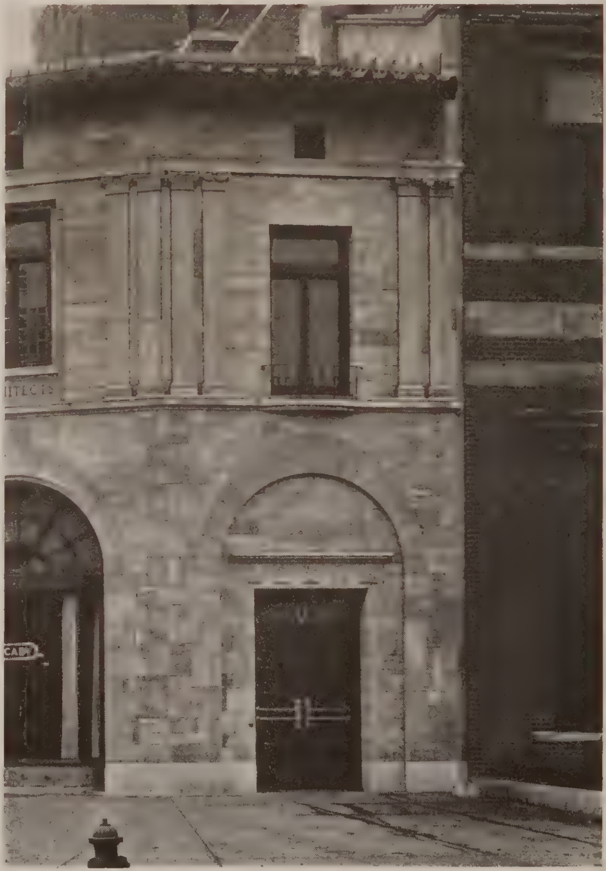
COST DATA

Complete, 41c per cu. ft. in year of erection, 1924.

adds considerably to the interest of the design. The lintel over the entrance door has five square panels, carved in low relief, the designs of which suggest painting, architecture, music, literature and sculpture. The utilitarian entrance door with glass panes and brass pushbars is another concession to the practical requirements of a modern office building. Paneled doors in either bronze or wood, would have better suggested the Italian spirit in which the building is conceived, but notwithstanding these unavoidable concessions to utilitarian necessity, the building displays unusual consistency in design and cleverness in adapting the plan to the very irregularly shaped lot, which extends through from Niagara Square to the street behind. The ground floor is given over to shop purposes, while on the second floor are the architectural offices of the owner. The building represents a successful solution of a problem.



Detail of Entrance Door

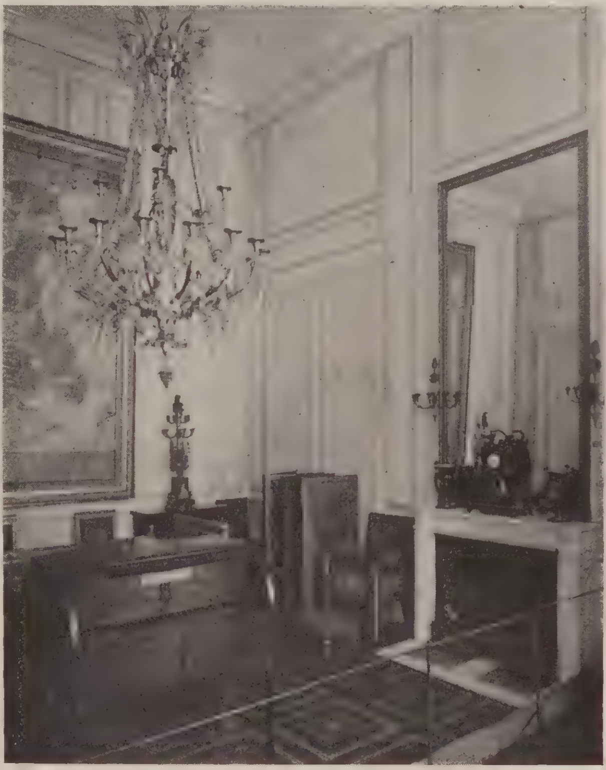


Detail of End Bay

INTERIOR ARCHITECTURE

Details of a Louis XVI Salon at Fontainebleau

Drawn by C. HAMILTON PRESTON



Napoleon Furnished This Salon in the Empire Style

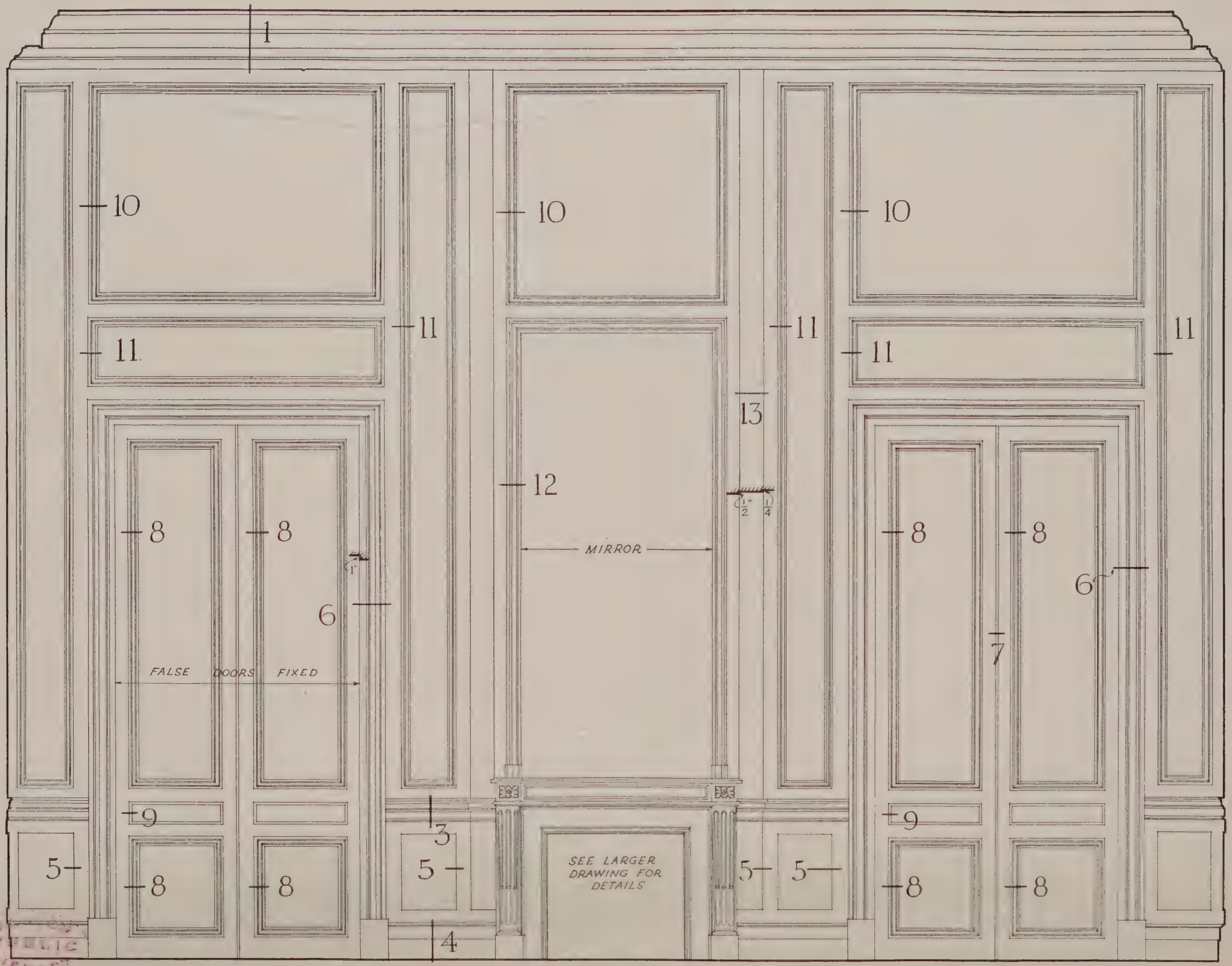
FONTAINEBLEAU was a favorite residence with the kings of France as early as the reign of Louis VII. It was not, however, until Francis I ascended the throne that the palace as we now know it was begun. Through his tremendous admiration for the Renaissance, which had been introduced from Italy, Francis summoned a galaxy of great artists from that country, among whom were Primaticcio Serlio, Leonardo da Vinci, Andrea del Sarto, and numerous others. Under the influence of these artists and architects a great part of the palace as we know it today, including the gallery of Francis I, was built. Among the earlier French architects employed upon the palace we find Philibert de L' Orme, Du Cerceau, and Lemercier. Henry II, Henry IV and Louis XIII all made extensive additions to the palace.

Under Louis XIV we find the installation of the charming little suite of rooms for Madame de Maintenon, which are among the best of the smaller apartments of this period still extant. Under Louis XV few changes were made, but with the coming of Louis XVI to the throne, that exquisite series of rooms was arranged which have ever since been known as the Marie Antoinette apartments, in honor of her for whom they were built. Napoleon, who became a great lover of Fontainebleu, adapted for his own use what had been done in the past, and fitted for the Empress Josephine and himself a suite of rooms on the first floor, known as the Napoleon apartments, which remain today intact with the Empire furnishings perfectly preserved just as they were left. Each succeeding monarch seemed to respect the work of his predecessors at Fontainebleau, and fortunately the palace escaped the ravages of the Revolution, and suffered no changes during the Second Empire, which worked havoc elsewhere.

The salon which is the subject of these detailed drawings is a room en suite with the Marie Antoinette apartments, which was afterwards used by Napoleon as an office for his secretaries. This room is chiefly distinguished for its great dignity and extraordinary proportions. In relation to its length and width, the height is unusual, giving an effect of extreme verticality, although at the same time most pleasing. The simplicity of the design and the refinement of detail and mouldings all contribute to the charm of this room. One could hardly find a simpler or more dignified interior, or one more practical.

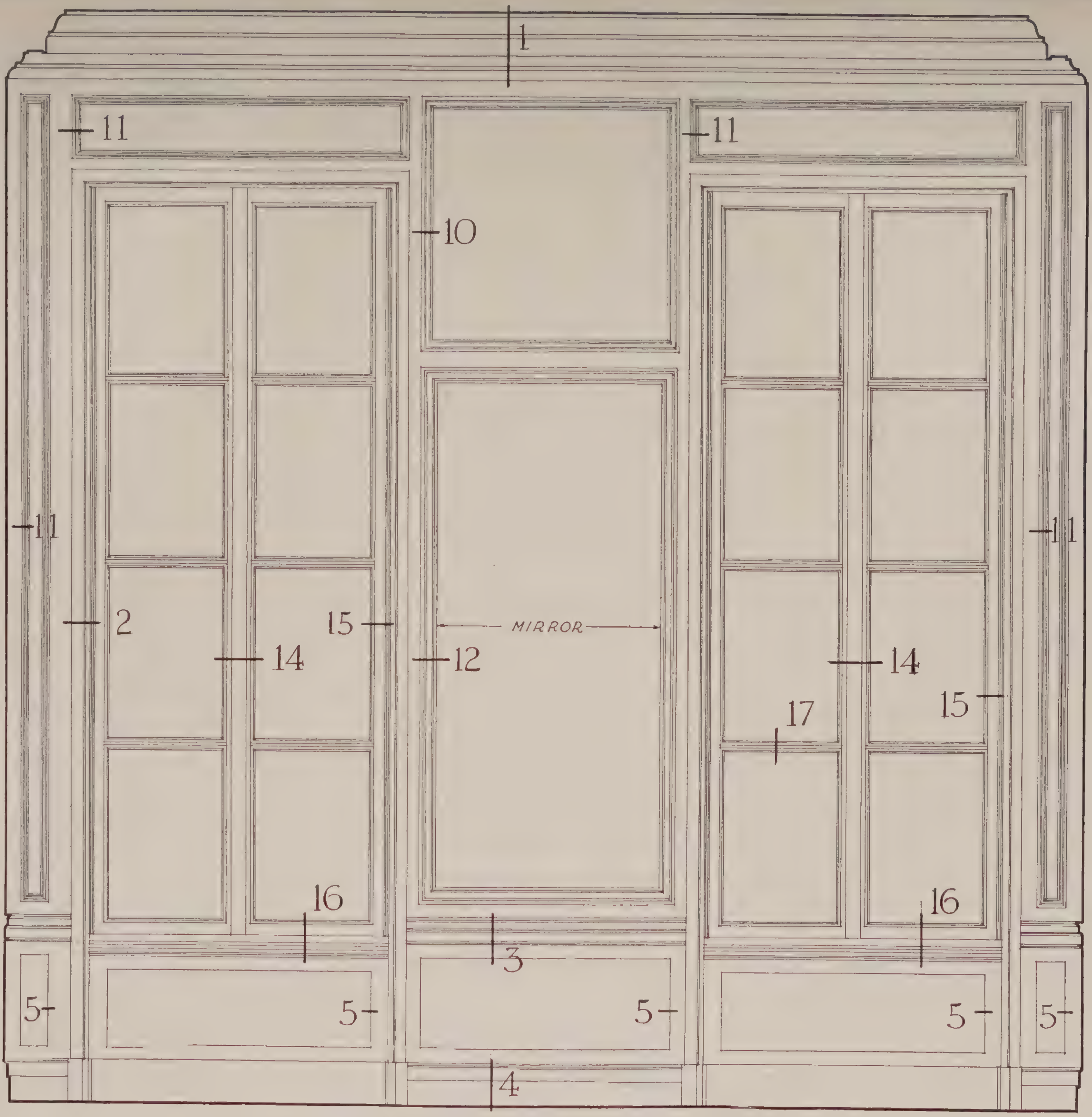
The delightful arrangement of the paneling is noteworthy. The real door at the right of the mantel is balanced on the other side by a false door, the tall narrow panels which run all around the room being placed between the mirror over the mantel and these doors, as well as at the ends of the wall, thus preserving a perfect symmetry. The wall opposite has the same arrangement, a mirror being placed to exactly balance that over the mantel. In addition a mirror is placed between the windows at the end of the room. These mirrors, with their simple mouldings in gilt, are a distinct feature in the room.

The raised panels in the base, with their simple projections and no mouldings, are unique. The arrangement of paneling on the wall opposite the windows is such as to carry around the scheme of larger and narrower panels with the greatest exactitude. Although of great refinement, the mouldings are vigorous, the larger panels being differentiated from the smaller in the scale of the mouldings. The cornice is bold, but in perfect scale and proportion.



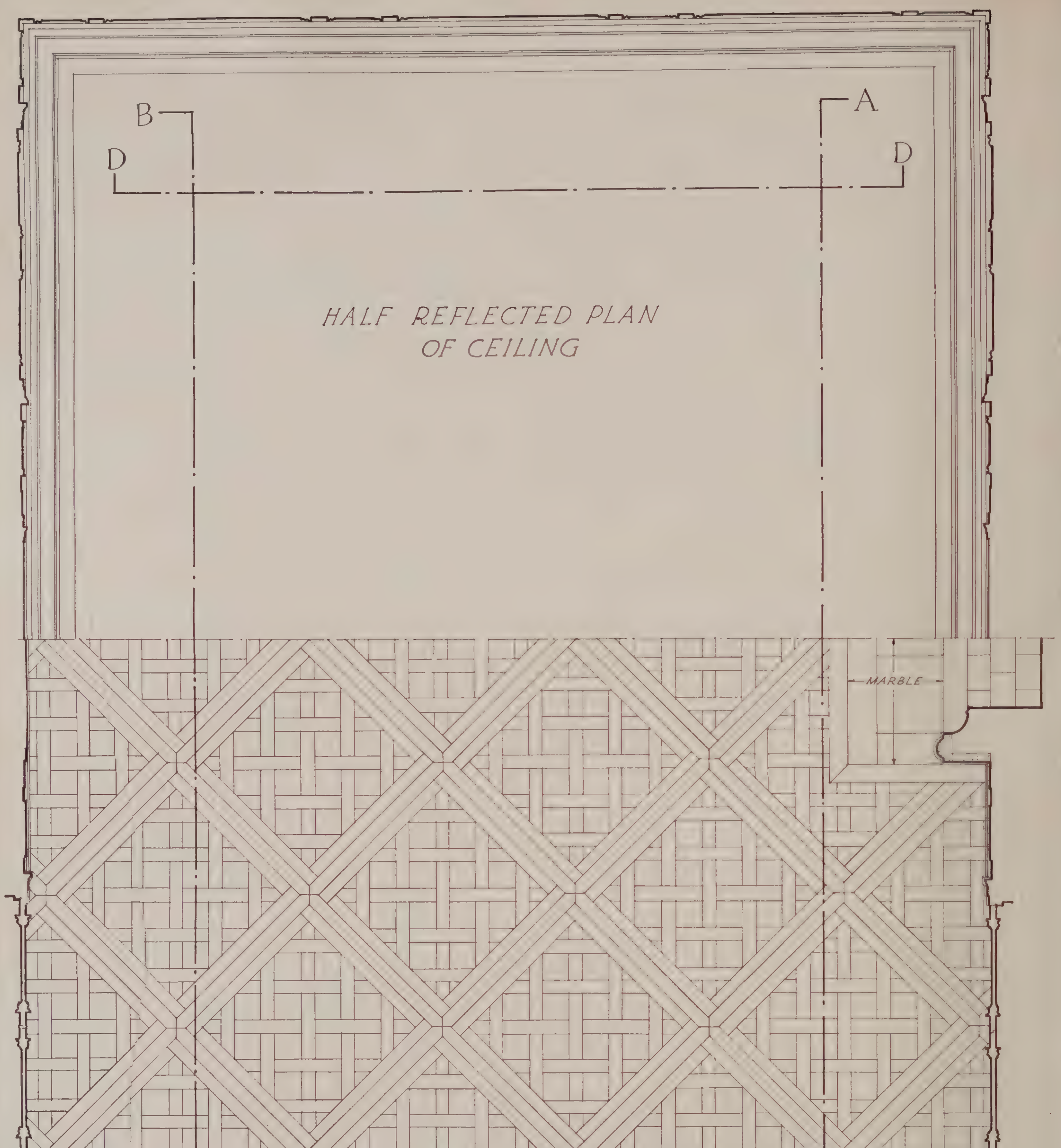
Elevation "A·A" Scale $\frac{3}{8}$"=1Ft

SALON ~ PALACE OF FONTAINEBLEAU



Elevation "C-C" *Scale $\frac{3}{8}$"=1Ft*

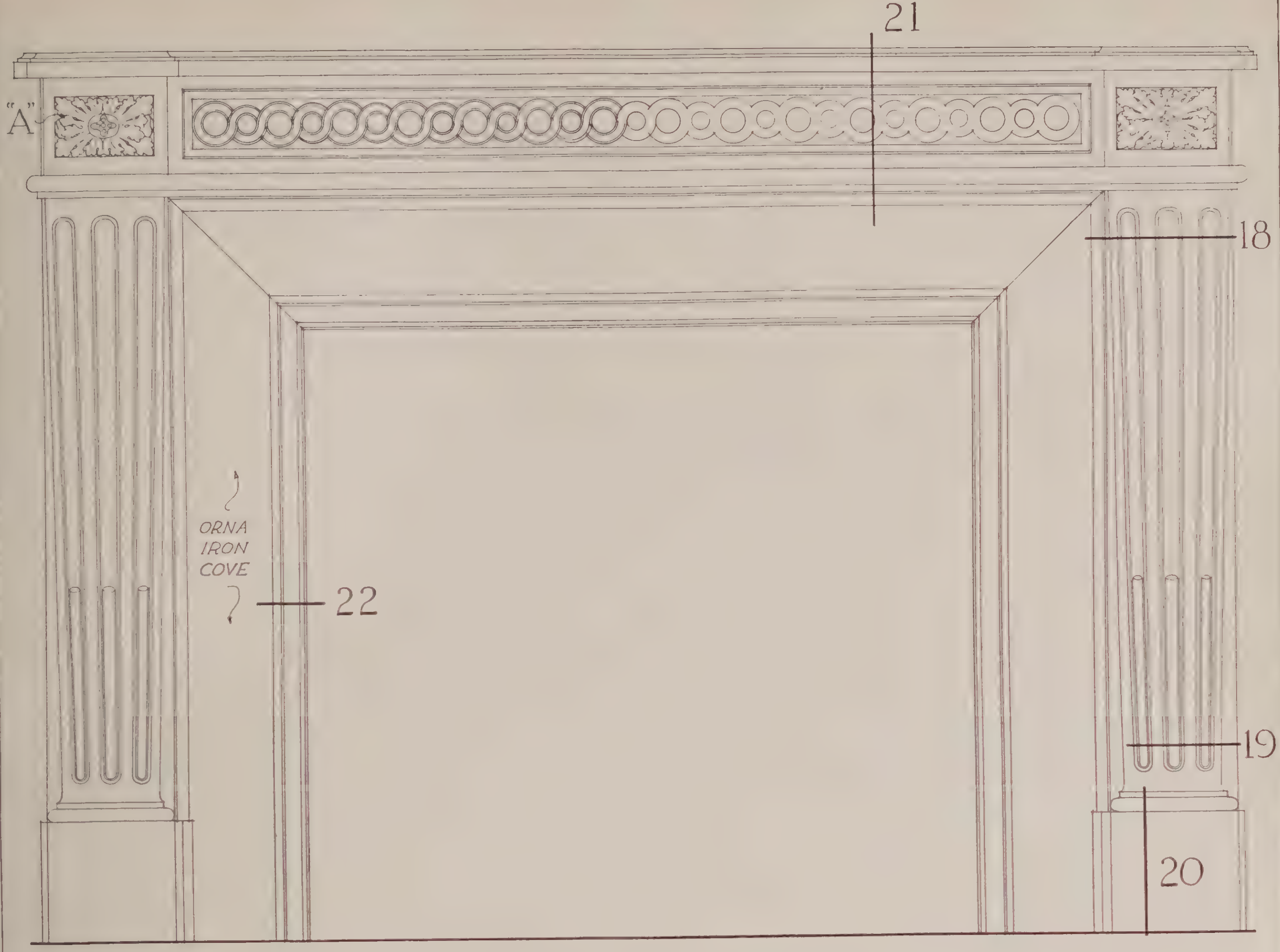
SALON ~ PALACE OF FONTAINEBLEAU



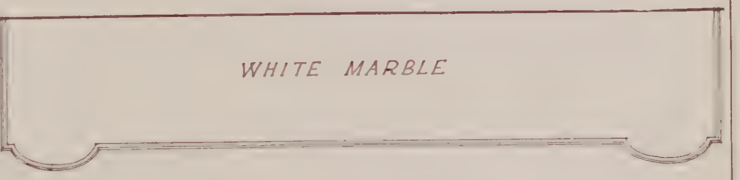
PLAN

Scale $\frac{3}{8}$" = 1 Ft

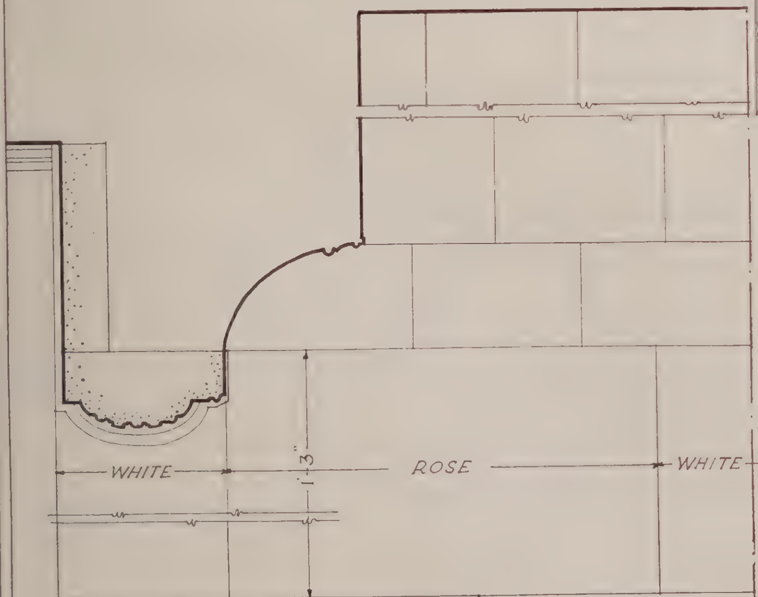
SALON - PALACE OF FONTAINEBLEAU



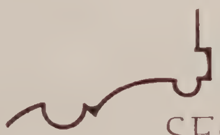
ELEVATION OF MANTEL



PLAN OF TOP OF SHELF
Scale $\frac{3}{4}$" = 1 Foot



$\frac{1}{2}$ PLAN OF MANTEL *Scale $1\frac{1}{2}$" = 1 Ft.*



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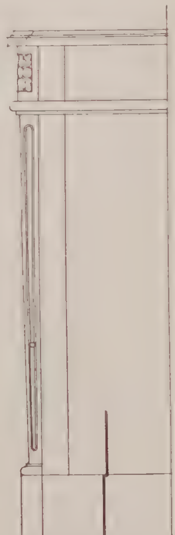
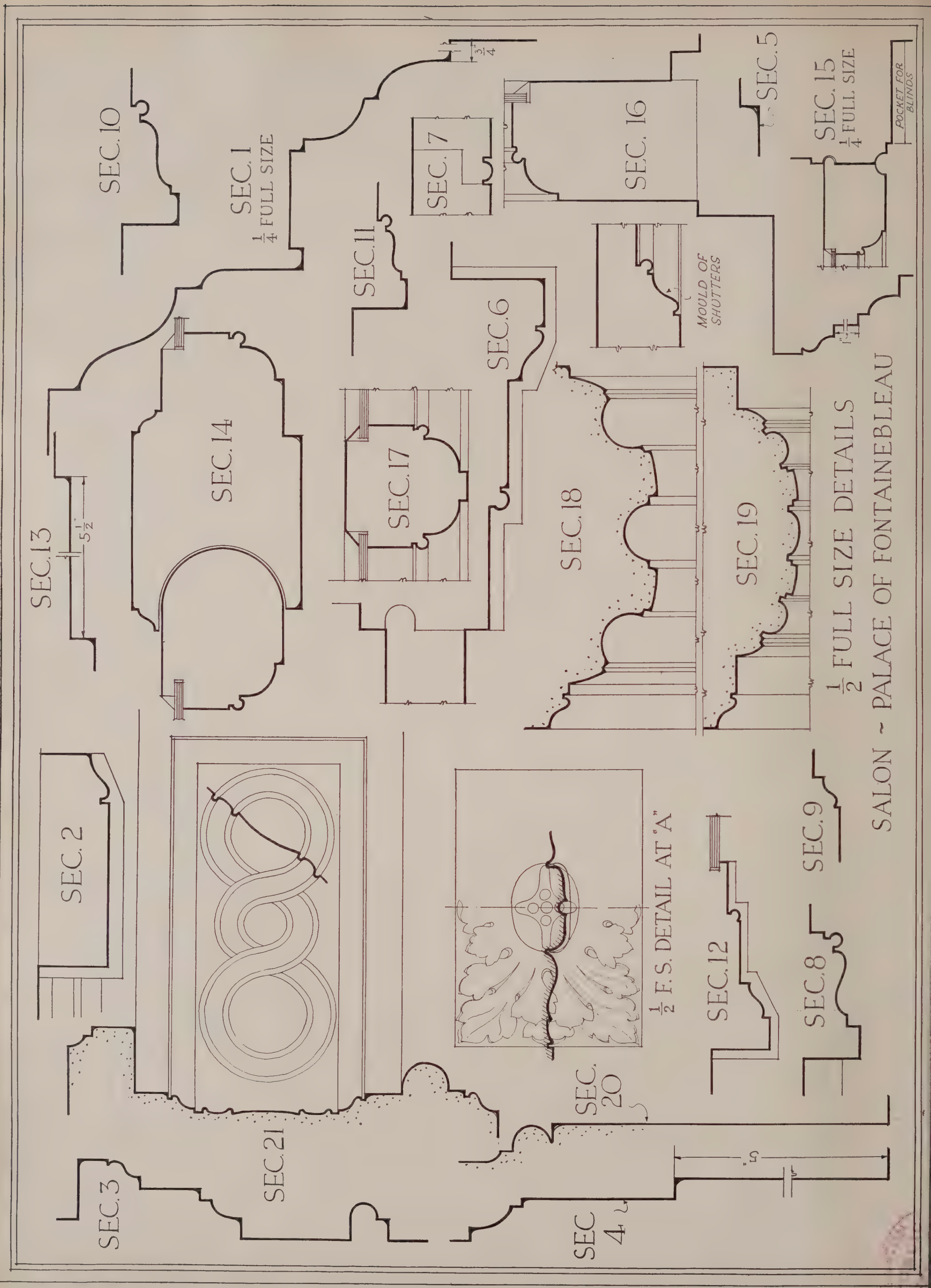


SIDE ELEVATION
Scale $\frac{3}{4}$" = 1 Foot

SALON
PALACE OF
FONTAINEBLEAU



1/2 FULL SIZE DETAILS
SALON ~ PALACE OF FONTAINEBLEAU

Several Types of French Tables

By CARROLL BILL

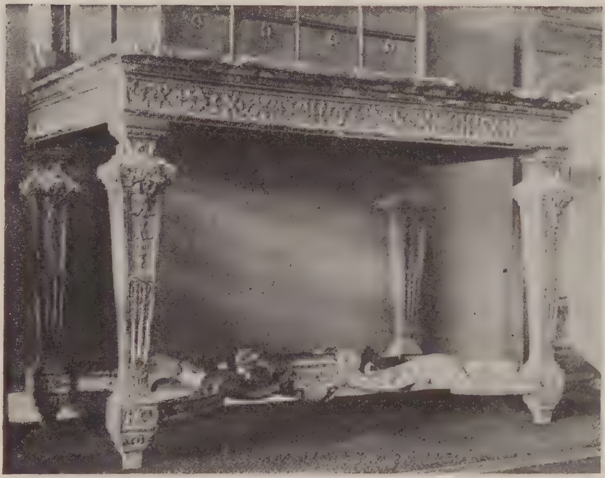


Fig. 1. A Table of Early Louis XIV Period

THE so-called great periods of French furniture design, whose marked characteristics enable us most readily to identify them by style, are those of Louis XIV, Louis XV and also of Louis XVI.

Three types of Louis XIV tables are here illustrated. The earliest, shown in Fig. 1, is severe in outline, structurally practical and impressive in its sturdy strength. Its severity is relieved, however, by well placed repeating ornament using leaf and geometrical forms and telling of its derivation from Italian sources through Francis I. In the example of a later date, shown in Fig. 2, we may still see the same profiles of mouldings and type of detail but note an increased use of freely pierced carving and elaboration, particularly in the treatment of the stretchers and the addition of the carved ornaments hung under each side of the frame, this latter being a characteristic feature of the more florid type of Louis XIV table.

The later development of the style is shown in Fig. 3, a console table in which we note a decided departure from use of the straight line and vertical support, and although the characteristics of ornament are the same as those of its predecessor, the use of curving lines of the legs and the shaped plan of the top are distinct changes, and this latter type or style of the Regency is the forerunner of the following Louis XV style. So the important characteristics of a Louis XIV table are: structural soundness, a feeling of theatrical luxury, a symmetrically arranged and rich ornamentation, boldness of mouldings and profiles, and a lack of technical excellence of execution. Walnut was the wood most generally used, either finished in natural brown or gilded, and the tops were of marble.

The style of Louis XV, developing the already begun tendency towards softening of lines and freedom of ornament, carried to the extreme limit of inventive design the use of curves and sweeping lines combined with an amazing variety of

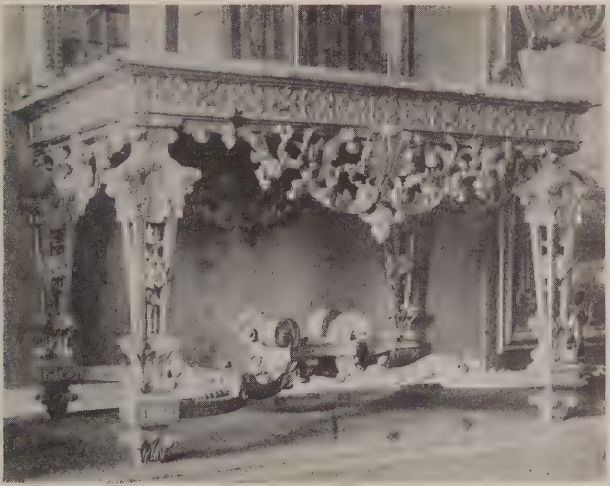


Fig. 2. Richly Ornamented Louis XIV Table

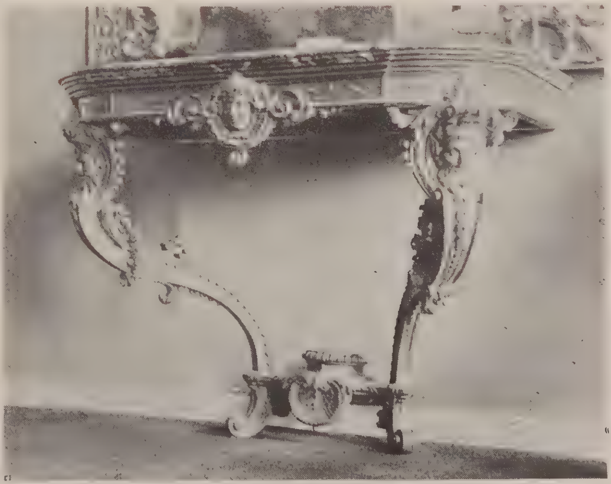


Fig. 3. Late Louis XIV Period

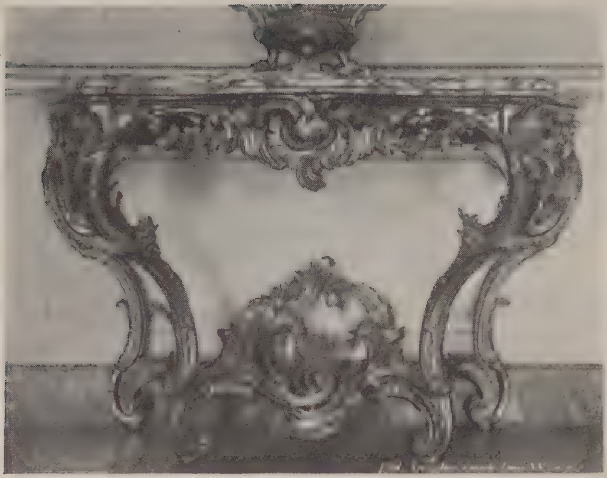


Fig. 4. Ornate Louis XV Console Table

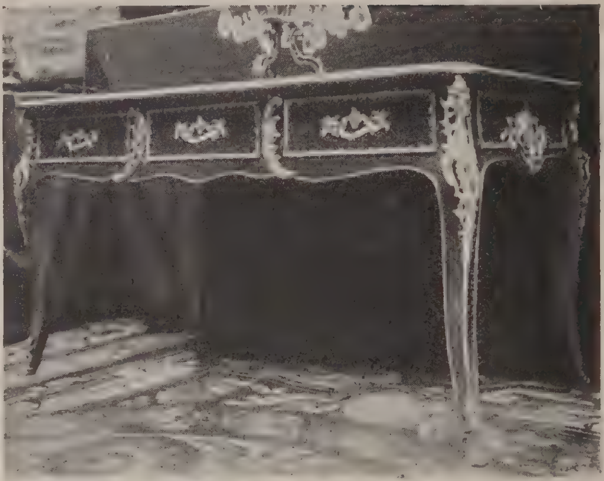


Fig. 5. Restrained Type of Louis XV Period

flower and leaf decoration. At first glance this disregard of the straight line might suggest structural weakness, but if we examine the console table shown in Fig. 4 it is very evident that its legs and underbracing, although in violent movement, are quite equal to the task of supporting the heavy marble top. Aside from this quality of concealed strength the most interesting characteristic of Louis XV furniture is the subtle balance of its ornament. Referring again to the console table, we note that should we draw a vertical line through its center, the two halves with their carved ornament are really not exact duplicates but are full of little differences of curvature and shaping, the whole, however, giving the appearance of balance, which is a feature of Louis XV design.

The large table shown in Fig. 5 is an example of a more restrained type, although equally typical of the style with its strong curving legs, sweeping lines of body and ornament which in this case is of ormolu or chased brass applied on figured wood.

In the style of Louis XVI, compared with those preceding, we note a restraint in use of ornamentation, a tendency to enclose decoration in panels and to recognize the vertical and horizontal feeling of legs, stretchers and bodies of tables. Here too an exact symmetry and balance of ornament are evident, and decorative detail is placed in a succession of repeating motifs. The turned leg is much in evidence and may be fluted either vertically or spirally, as in Fig. 6, and laid in with little carved husks, or else, as in Fig. 7, reeded and bound, to suggest a sheaf of arrows. All ornament shows a classic influence, and the straight mouldings are carved with beads, egg and dart and similar enrichments. The general form of tables is more nearly rectangular, with square edges and corners.

The large table shown in Fig. 7 illustrates very clearly the important structural characteristics of the style, and here we have the rectangular marble top with simply moulded edges and eight turned and carved legs connected by straight stretchers at the bottom; its ornamentation is formed by the repetition of a small number of decorative units enclosed in panels. The use of paint in the lighter colors,—grays, greens, and ivory,—was common.

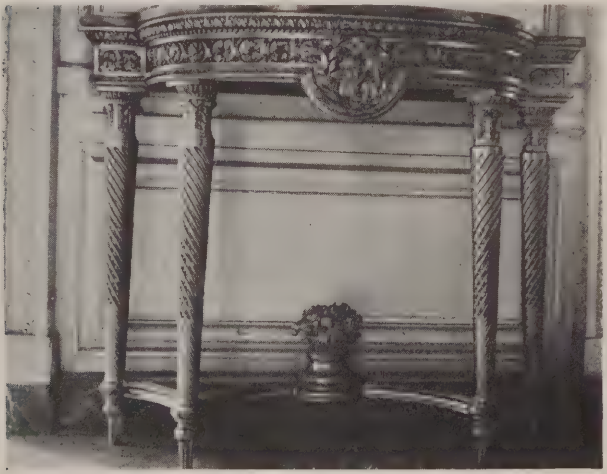


Fig. 6. Wall Table, Louis XVI Style

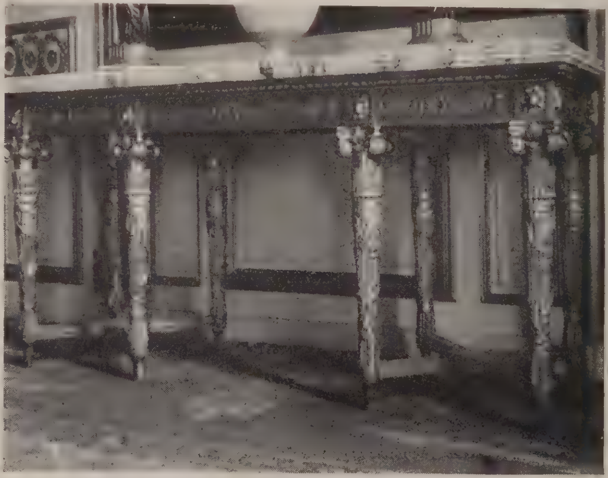


Fig. 7. Characteristic Louis XVI Design

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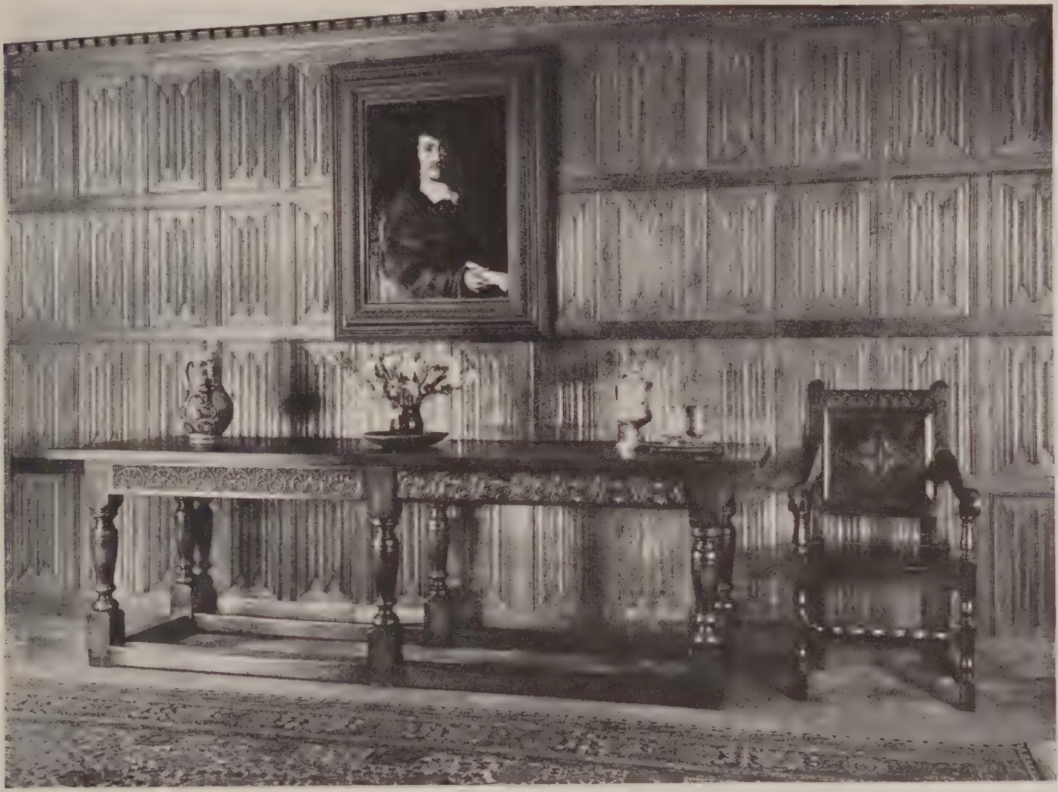

A WALL IN THE SHOWROOMS

Early 17th Century English Oak Refectory Table and Wainscot Chair, by Kensington

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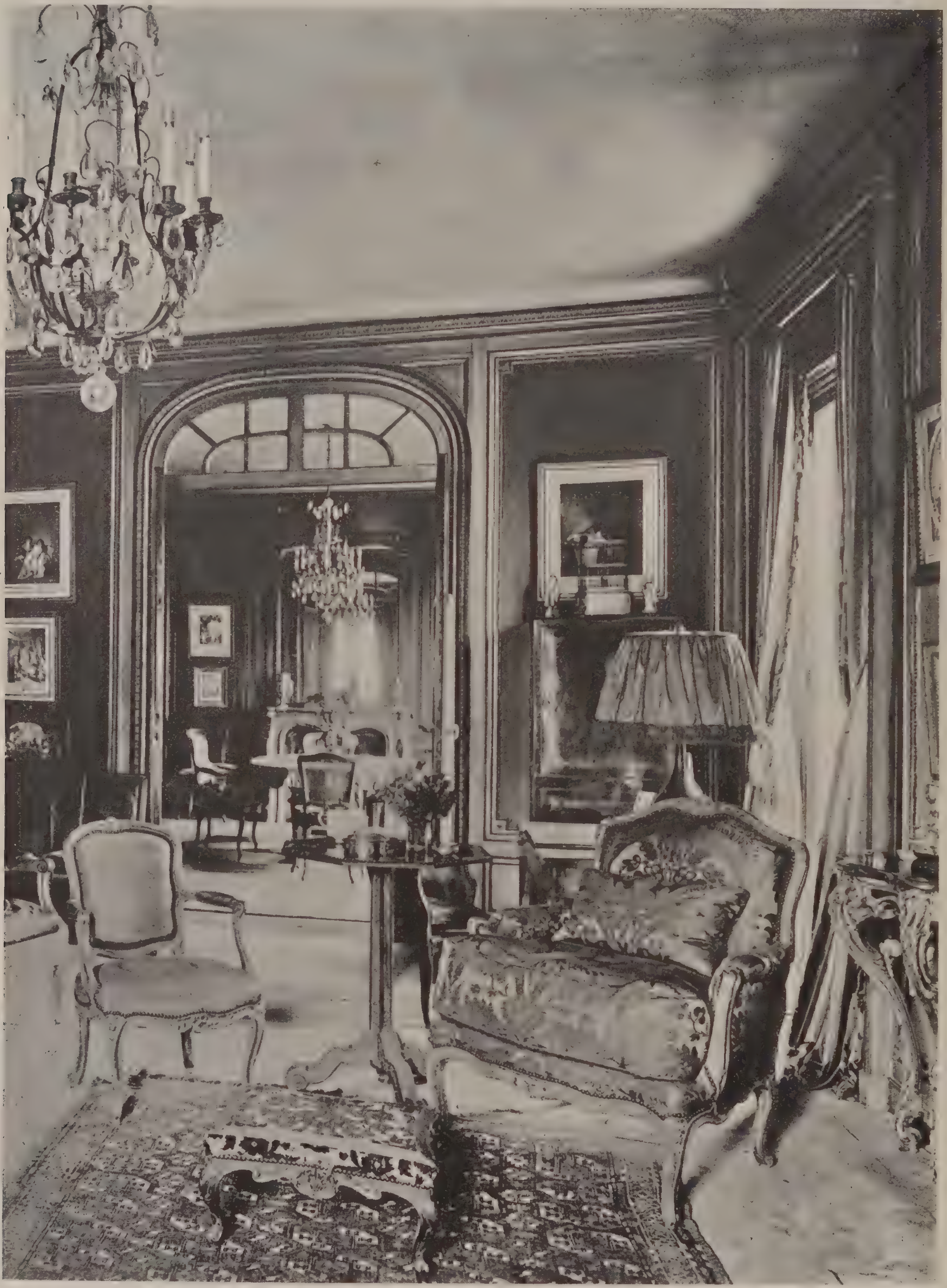

APARTMENTS ARE PARTICULARLY SUITABLE TO DECORATING AND FURNISHING IN THE FRENCH STYLES ©

The Living Room of the apartment pictured is of a simple Louis XVI design, walls painted green. The curtains are of striped satin; the lie-de-vin taffeta in the wall panels making an ideal background for the old engravings in color. The oak panelled Regence Dining Room has a fine set of armchairs of the Louis XV Period.

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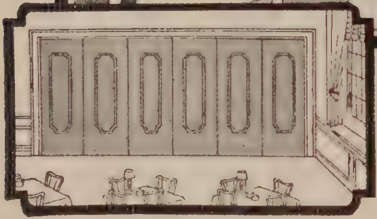

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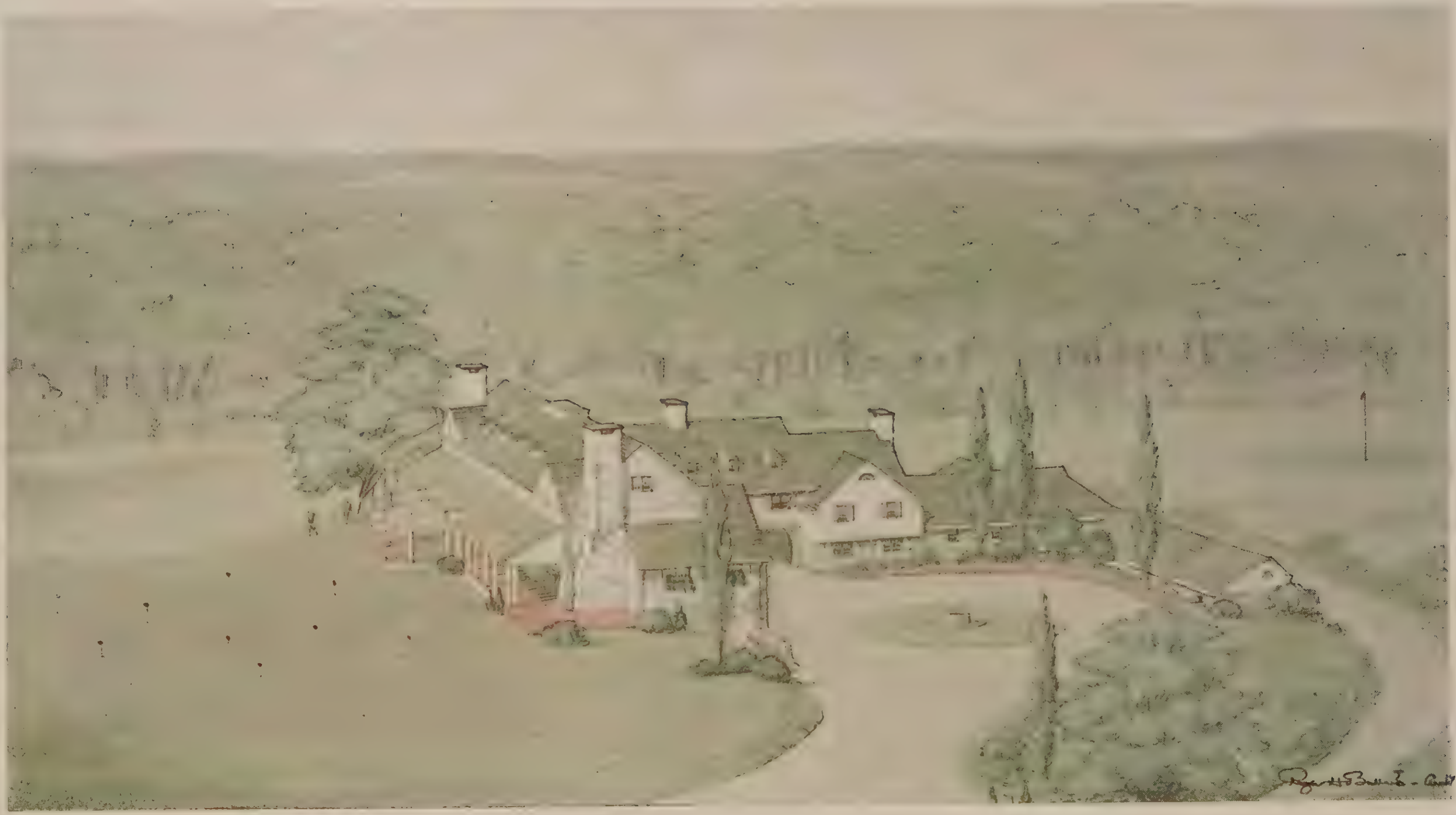


PRELIMINARY STUDY FOR THE OAKLAND GOLF CLUB, BAYSIDE, NEW YORK

ROGER H. BULLARD, ARCHITECT

The
ARCHITECTURAL
FORUM

Volume XLII MARCH 1925 Number 3

What the Golfer Wants in His Club

By GRANTLAND RICE
Editor, The American Golfer

THE startlingly rapid development of golf in this country during the last decade, more particularly since the World War, has worked a material change in the predominating requirements in the golf club of today from those of an earlier period. Golf is now *the* game of the business man and his professional brother, and it is rapidly laying hold of the artisan and the tradesman. Gone are the days of the candy-striped blazer, which at one and the same time served as an object of derision and ridicule on one hand and a hall-mark of the ultra-ultra on the other. The significance of the new order of things in golfing is that the conception and standard of playing facilities and provision of housing accommodations for those who play have undergone a notable change. To get the proper background for the picture, it may be well to look back a few years and follow the thread of this development down to the present time.

For all of the fact that the game is known to have been played for five centuries and more, it is hardly more than three decades old in this country. A glance down the roster of the 3000 and more clubs in the United States reveals the fact that only a scattering handful were in existence as far back as 30 years ago. When the game began to attract the attention of the early few, the country clubs of the day were the first to be impressed with its possibilities as a further development in their program of activities. This, of course, was entirely logical. These clubs already had organizations, and furthermore, they already had homes in the open country, many of which offered space for the construction of golf courses, and so their adoption of the game was entirely fitting.

But the country club of that day was admittedly an appurtenance of the wealthy class in each community. Membership in it was equivalent to a badge of social distinction. An atmosphere of luxury surrounded it, and its activities were conducted on rather a grand scale. Golf was inducted into the general scheme of club activities, and as a matter of course came to take its place on the same plane of administration and conduct that marked the other affairs of the club. In other words, this frugal foundling wandered all the way from the sand dunes of bonnie Scotland and found itself adopted into the lap of luxury in the United States.

But there was a fundamental appeal to the game, and it began to lay hold more and more securely. Busy middle-aged men, alarmed at their snatchy, gasping efforts at breathing following the hurried ascent of a flight of steps or a brief sprint for the morning train or car, began to take heed of the advice of their physicians to "get out into the open more." They turned to golf and found, rather to their surprise, that the "fool game" was fascinating. One man told another, and some took it up in self defense in the hope of getting an even break in a conversational way when they happened into a gathering of friends who had already been bitten. At any rate, the country suddenly woke up to find the fever of golf on it—and here we are. To keep pace with the increased interest, new clubs began to be organized all over the country. But regardless of whether their sponsors designated them as "golf" clubs or "country" clubs, the influence of their antecedent, the country club of the old days, was on them. Golfers came to expect fine appointments, luxurious fittings and service akin to that to be found in a metropolitan hotel in the matter of catering and culinary effort, and with these came, inevitably, heavy expense. Straightway there followed the indictment that golf was a game within reach of the rich alone.

It has been and even is, so far as membership in private clubs is concerned, expensive entertainment. This is true in large measure because of excesses in various ways,—in administration, for one thing. If the men who make up the memberships of the numerous clubs about the country ran their own businesses as they allow that of their clubs to be run, in a large majority of cases they would shortly be facing bankruptcy proceedings. Club management is a business, just as selling insurance, manufacturing shoes and the like, and the sooner the members of the clubs of the country come to realize it, the sooner they are going to begin saving.

Course construction and maintenance have been other sources of reckless waste of money. One very capable judge, an enthusiastic golfer, an official in one of the well known middle-western clubs, and a man who has for several years made a careful study of golf course upkeep, is responsible for the statement that clubs of the country are annually wasting millions of dollars through ignorance in meeting the various and sundry problems of maintenance.

However, better days are dawning. The United States Golf Association, through its Greens Section, with the coöperation of certain men in the United States Department of Agriculture, is taking a lot of the bunk out of this end of the game. Intelligent research and experimentation are getting to the bottom of many of the problems, and hope eventually to clear them all up. Authentic information on much that was formerly puzzling is now to be had almost for the asking, and there now remains but little excuse for wasting money through lack of knowledge of how to expend it properly.

Efficient management, both in the club house and on the course, is capable of contributing largely to providing the golfer with what he wants at a reasonable figure. An appreciation of his tastes and consideration of them in providing for him are the next important matters, and here it ought to be borne in mind that the average golfer today is a golfer first and a cotillion leader afterwards,—if at all. Social activities have their place in the golf club, but they are secondary. It is a significant fact that within the past five or six years, the non-golfing golf club members have been very rapidly disappearing. So noticeably is this true that clubs now very frequently offer what are called social memberships, including all club house privileges but no golf privileges, at prices that are sometimes as low as 10 per cent of the golf membership costs, and rarely more than 20 per cent. Meanwhile the caddy master or starter is accepting starting times from the first tee three and four days and sometimes as much as two weeks in advance!

What the club member expects in his own individual case depends very largely on the type of his club. There are golf clubs and golf clubs. Usually the member is logical enough not to expect to satisfy a a champagne thirst on a hard cider bankroll. What he wants is still easier to determine. He wants the best golf course the club can possibly afford. He even likes to have it much harder than is good for his own game. If you want to judge what is good for him you can do so by the figures he hands the handicap committee. And he wants the course kept in the best shape possible with the means at hand.

He also wants a comfortable club house with merely the conveniences and comforts that will contribute to his enjoyment. Generally speaking, he doesn't ask for luxury so long as you give him comfort. He may at times be a little over-exacting in his demands on the catering service. Such, for instance, as when he and the gang have hung around "the 19th hole" up to the "Sweet Adeline" stage, and then come into the dining room or grill, only to find that the kitchen force has been turned loose and that nothing but cold cuts is to be had. He'll probably proclaim in an enraged tone that it's a heluva club, and that he doesn't see why he stays in it. But if you tackle him a couple of days later and explain that keeping the dining room open all hours of the night means an addition of about 50 per cent to the overhead, and a probable assessment at the end of the year, he'll more than likely listen to reason.

To sum up, then, the trend of the times in golf club essentials is toward laying more and more emphasis on the playing of the game, at the expense of a corresponding decrease in purely social activities. The maximum of perfection possible in playing facilities, within the means available, and club house accommodations which feature comfort rather than luxury, together with convenience rather than elegance, constitute the basic requirements toward returning to the golfer one hundred cents in value for each dollar that he pays into the club's exchequer.

Study for the Round Hill Club, Greenwich, Conn.

Delano & Aldrich, Architects

The Evolution of the Golf Club House in America

By J. LEWIS BROWN, *Editor, Golf Illustrated.*

LED by such stalwarts as Robert Lockhart and John Reid, golf was introduced to America in the summer of 1887, and their first "club house" was a table attached to an apple tree, from the limbs of which was suspended the superfluous clothing of the men who were giving Colonel Bogey a battle in the adjacent meadows. This tree, which still flourishes in a garden just off North Broadway in Yonkers, proved the Mecca for the handful of pioneers known as the "Apple Tree Gang," to which, curiously enough, golf in America traces its genesis. From the nucleus of the "Apple Tree Gang" came the formation of the Yonkers Golf Club and later the St. Andrew's Golf Club, now located at Mt. Hope, New York, which is generally conceded to be the oldest golf club in the United States. From this little band of golfers in Yonkers there have grown nearly two million followers of the game in this country, and from this modest little apple tree as the first club house there have developed nearly 3,500 golf clubs; but none of the golfers of those days, or for several years afterwards for that matter, had any idea that golf, in view of the expense required for the construction and upkeep of the links, was ever to be a popular game in the United States, and destined, as must now be realized, to become an almost dominant feature, after baseball, in the outdoor life of our country.

It was not long after the organization of the St. Andrew's Golf Club, in fact it was in 1894, that these pioneers forsook the apple tree, and even the old farmhouse at "Grey Oaks," in which they afterwards stored their clubs, and built themselves a small but none the less attractive club house at Mt. Hope in 1895. About the same time the Shinnecock Hills Golf Club, at Southampton, was organized; this club contends that it was the first legally organized golf club in this country, because as early as 1891 it owned a tract of land large enough for an 18-hole course, and the following summer it was able to open a club house. Another of the early clubs was the Tuxedo Golf Club at Tuxedo Park, incorporated in 1894, though the game was played there much earlier. The Country Club of Brookline, and the Belmont Golf Club, near Downer's Grove, Illinois, were also among the initial clubs, as were also the Newport and Meadow Brook Golf Clubs. These first club houses were of necessity small but comfortable, that at Shinnecock Hills being by far the most pretentious. The game itself was preëminent, however, and there were no demands on the club's capacities in other than a golfing way. As interest in the game grew, however, and play became more general, new club houses sprang up all over the country with surprising rapidity. As always, competition not only in golf, but in club house building developed. Each new club tried to outdo what its rivals had done in the past. The smaller club houses gave way to larger buildings as expansion demanded it. Some were demolished, and others lost their original individuality by the addition of new wings and superstructures. Soon the golf club house began to compete with that of the country club, and the race was definitely on.

Few country clubs now consider themselves complete unless they have golf courses, while many golf clubs offer not only golf but also all the sports which at one time the country club considered particularly its own, so that in reality the country club is fast giving way to the golf club, for there is no question that golf is the ranking sport at these clubs today. The advent of these additional sports and the ever-increasing demand on the capacities of the club houses for social entertainment and comfort could not but make themselves felt in the requirements. All of these augmented features had to be catered to, and often as not they demanded as much if not more attention than golf itself. The logical result was that the buildings kept getting larger and larger; locker rooms and dining rooms spread themselves out over more and more territory;

The St. Andrew's Golf Club, Mt. Hope, N. Y.
Built in 1895

Eighteenth Green at Shinnecock Hills
From a photograph taken in 1898

Old Meadow Brook Club, Westbury, N. Y.
Established in 1881

Aronimink Golf Club, Drexel Hill, Pa.
Established in 1901

wings for bedrooms and lounge rooms were added; tea rooms and enclosed porches were found necessary; the demands of the women members began to receive as much attention as those of the men; swimming pools, squash and handball courts found a place in the club house planning; kitchens and laundries took on the pretentiousness of those in small hotels, until finally the whole club house, in a measure, was changed from the club house as an ideal into what may be termed little less than a magnificent country hotel, surrounded by a huge estate, converted into a playground extraordinary. The Olympia Fields Country Club, near Chicago, the Westchester-Biltmore Country Club, at Rye, the Congressional Country Club, at Washington, the Longue Vue Club, at Pittsburgh, and the Pinehurst Country Club, at Pinehurst, are but a few examples of what may be termed the last word in this direction—at the present time. But we never know what some new Barnum may produce tomorrow, as "bigger and better than ever." These clubs, with their beautiful courses and club houses, are striking monuments to the enormous growth of golf, with its ever-increasing demands.

All clubs have not aspired to build new club houses. Some have found that by remodeling old houses attractiveness and comfort can be combined at a financial outlay far smaller than if new buildings were attempted. Thus, in the selection of a piece of golf property it is now often considered a piece of good fortune to have on it an old family residence in good repair, suitable for remodeling. In this way much of the charm which only a real home possesses is retained, and a great deal of the formal coldness of the large club house is avoided. This plan has many advantages as well as disadvantages, but there is no doubt that where the question of immediate financing is a factor, it is often considered and taken advantage of. Again, in other circles the desire for an architecturally attractive building has been an important factor, particularly where the club's exchequer has permitted building the type of club house that the contour of the site demands or the historical associations of the neighborhood make fitting.

Thus, from the little club house at Shinnecock Hills, which incidentally was designed by the late Stanford White, down to the palatial edifices which serve the countless thousands of today, there has been tremendous transformation both in size and in architecture. What the future will produce no one can say, but it does not seem unlikely that club houses more pretentious and more palatial than those of the moment may even yet be evolved.

Westchester-Biltmore Country Club, Rye, N. Y.
Completed in 1922

Congressional Country Club, Washington
Opened by President Coolidge, May, 1924

The Architecture of Country Clubs

By ROGER H. BULLARD, *Architect, New York*

PRIOR to the year 1894 and before golf had become an established game in America, there were a few clubs which existed for the enjoyment and promotion of certain sports such as polo, horse racing, tennis, swimming and track athletics, in which only the comparatively few could actively participate. Among these there was a club in Brookline, which in September, 1882 was incorporated as "The Country Club." The patent then copyrighted on the name is protected to this day by the laws of Massachusetts, and it is only with qualifications that "The Country Club" can be used as a popular term. This is a fact not generally known.

It was not until golf had been adopted in America that the country club as we know it came into its own as the social center of every community. With the rapid spread of interest in this sport, there grew the demand for club buildings where members could gather and talk over the game. The early country club catered solely to the needs of its members, with a locker room and perhaps a grill, but in America we cannot long let an idea lie fallow. We must develop it and extend it, with the result that today we have advanced to a point where our clubs provide for extensive sports, such as bowling, squash, trap shooting, polo, swimming and dancing, tobogganing, skiing and skating. Such is the evolution of the country club. In England, in the early days of golf, the courses were laid out near the sea, and the players usually stayed at hotels in the neighborhood and used the links with their meager facilities. This brought the game within reach of all. In that country golf is enjoyed by the poorer classes, and it is quite usual to see a laborer quit his work and start for a round with his three clubs under his arm and a ball or two in his pocket. The new golf clubs now being established there are built along the more liberal lines of the American clubs. A number of large estates have been purchased in England, and golf courses of the park type have been laid out with club houses containing ample locker rooms, with lounges and dining rooms of modest proportions. Stoke Poges, near London, is one of the newest of these, but even there one does not find all the facilities and conveniences of our modern country clubs in the United States.

Twenty years ago in the United States, to be able to enjoy the game at all one was obliged to belong to an expensive club, as we had nothing here to compare with the public commons of the British Isles. Today, however, there are many public and municipal courses, in and about the larger cities, which makes the game possible for all at a nominal cost. Thus the game is being widely popularized.

The country club is distinctly an American institution, and the number which have been established during the last few years is evidence of our growing love of out of door sports and of the intimate part they now play in modern American life. As a result, a new and distinct type of building has been evolved which expresses in terms of architecture this developed idea of community sport life. These clubs have taken on, more and more, certain characteristics in design and arrangement which are peculiarly their own and which would not apply to any other type of building. Unlike the planning of a private house, which meets the needs of an individual or family, the club house must be arranged to meet the requirements and tastes of many. In every locality these requirements vary, according to existing conditions and the type of club, but in all instances there are certain fundamental laws which apply, irrespective of a club's individual needs. The character of the building

Maidstone Club, East Hampton, N. Y.

Roger H. Bullard, Architect

Plainfield Country Club, Plainfield, N. J.
Roger H. Bullard, Architect

should depend on its environment, a rolling country suggesting an informal arrangement of plan with wings and varying floor levels and low roof lines, while a more level site would make a formal arrangement seem preferable. Geographical location also has a bearing on the general character of design. The clubs in Florida and California have almost universally adopted the Spanish or Italian styles of architecture, while those in New England have been influenced by American Colonial, English Georgian and French farmhouse design.

The first consideration, of course, is the site of the building. This should be adjacent to the first tee and 18th green and should have a commanding view of the course,—with a southerly exposure, to obtain the prevailing breezes and to admit sunlight most effectively in the more important rooms. The summit, plateau, or valley where the building stands should be chosen with great care, as it should be of sufficient area not only to accommodate the building itself but also to allow for adequate parking facilities. This important point is unfortunately often overlooked. It is not absolutely necessary that the parking space should be on the same level or even adjoin the main approach, since a building site of limited dimensions, or one which slopes away in all directions, might require a lower level for the parking of some cars; but it is important that space be provided somewhere for the maximum number of cars likely to be assembled on great occasions, for it is at just such times that congestion should be avoided. It is sometimes possible, by cutting and filling, to alter the existing topographical conditions of grade and so make an artificial plateau or valley large enough to meet all requirements. The parking space should be so arranged that a car may be started at any time without having to move another car out

Somerset Hills Country Club, Bernardsville, N. J.
Lord & Hewlett, Architects

Pinehurst Golf Club, Pinehurst, N. C.
Lyman Sise and Haven & Hoyt, Associated Architects

of the way. An open approach at the main entrance for free turning and circulation is also of great importance, and for economy of upkeep the area should be paved with a permanent material. The service entrance to the house should be so located as to be the least apparent from that part of the club premises used by the members.

The plan of a typical country club may be divided into these four general units:

1. The men's and women's locker rooms, wash rooms, valeting rooms, etc., which cater to all.
2. The public spaces, including entrance hall, office, waiting room, telephones, etc., all of which are for general use.
3. The club portion proper, including lounge, main dining room, grill room, card rooms, porches, members' bedrooms, etc.
4. The service portion, including kitchen, serving room, laundry, servants' dining room, stewards' and servants' bedrooms, chauffeurs' dining room, etc., which are utility departments.

The disposition of these various rooms would depend largely on the shape and arrangement of the building, so that it would be difficult to determine their relative locations without having in mind a specific instance. Again, the shape of the building would depend on its orientation and the contours of the ground, no two locations permitting similar arrangements of plan, due to the variations in these existing conditions, which must always be considered.

The building should have ample porches on the southerly side, enclosed or open depending on the various seasons. The main entrance should be on the opposite, or north side, between the locker units and the club portion, thereby making it necessary that members or guests pass the office whether they go to the locker rooms or to the club portion of the building. A protection at the main entrance, whether

Morris County Golf Club, Convent, N. J.
Geo. B. Post & Sons, Architects

The Mid-Ocean Golf Club, Hamilton, Bermuda
Warren & Wetmore, Architects

in the form of a covered driveway or a projecting hood, is a practical feature often overlooked, but which is particularly useful for evening parties at the club house. The service quarters should be in a separate wing, extending preferably toward the north, with service yard and entrance hidden from the main approach to the club house.

The locker room should be spacious, with ample light and cross draft, a room extending to the roof, with high windows, undoubtedly giving the best opportunity for adequate ventilation. Doors should be so placed that players can enter directly from the course without having to pass through the building proper. The arrangement of washrooms and showers and the installation of hot and cold supplies are all important. The women's locker room is sometimes located directly over the men's for economy in construction, plumbing etc., but this precludes the economies gained by extending the men's locker room the full two stories. The locker room should be utilitarian, with steel lockers and with floors preferably of linoleum or a rubber composition tiling of sufficient resilience to withstand hobnails. Space in the locker room for a few chairs and tables adds greatly to the comfort of the members. A valeting room, with drying cabinet, wardrobe and sink, should be adjacent to the locker room, with a clothes chute to the laundry, which should be located directly beneath if possible. In some clubs the locker room is in a separate wing or else is detached from the main building. This, however, is not as convenient, although giving greater possibilities for lighting and ventilation. The locker room and the assembly room are the most important units, and either may occupy the predominating position in the plan, the preference being determined by the type

Chicago Golf Club, Wheaton, Ill.
Jarvis Hunt, Architect

of club under consideration. The lounge may be arranged, by the use of folding partitions, so that it can be combined with the dining room, making one large assembly room for use on certain occasions of large gatherings.

The men's grill room should be near the locker room and the main dining room for convenience of service. The lounge must provide for the comfort of the members and be furnished accordingly. The fireplace should be an important feature in design and in position, not forgetting the necessity of properly proportioning its openings and flue for a successful draft. Two club houses in Westchester County have recently been destroyed, due to having improperly built flues.

Highland Park Golf Club, Aiken, S. C.

The service portion, which is preferably placed in a separate wing, should be arranged primarily to obtain facility in serving, and great care should be observed in locating the equipment details of the kitchen and serving room, so as to obtain maximum efficiency. There should be good light and cross draft, ample storerooms and dressers. Sanitation must be carefully considered, and composition floors with sanitary bases and floor drains should be provided to insure cleanliness. The refrigerating room should be properly ventilated, with separate electric ice-making refrigerators for the storage of different foods, the same care being taken for cleanliness in the finish of the floors and walls. An incinerator to burn all refuse is recommended, in order to avoid attracting flies. This source of heat may be used for the hot water supply system by adding a storage tank, thereby economizing in fuel consumption, which is always an important item.

The space on the second floor over the club portion can be arranged for members' bedrooms. If it be necessary to keep the initial cost down,

Nassau Country Club, Glen Cove, N. Y.
Charles A. Leeming, Architect

this space may be left in the rough and the finishing of the rooms postponed until a later day, although plumbing and heating lines should be run to their future locations. The servants' quarters may well be located on the second floor of the service wing, with a separate suite for the steward. It is important that a professionals' house with shop, men's and women's rack rooms and a caddy shelter be located near the first tee and 18th green, and at the same time it should be so arranged that the caddies may not be in evidence from the house.

The selection of materials for the exterior walls should be largely governed by the expression of design, though fieldstone, which might be obtained in constructing a golf course, could be recommended, especially as its use would make the building more fire-resistive. This material, used in conjunction with fireproof floor construction and interior partitions and roof covering, has proved invaluable on account of reduced insurance rates and permanency of construction without greatly adding to the cost. So many clubs of frame construction have recently been destroyed, with the valuable belongings of their members, that it is now recognized that a few dollars spent in the use of fireproof material are dollars well spent. Hydrants and hose located both outside and inside of the building will further reduce the fire hazard as well as the insurance rates, or else underwriters' portable extinguishers may be used in place of the inside hydrants. If there is not sufficient fieldstone on the property, it may be possible to use other materials in combination with the stone, such as brick, stucco or shingles. This should be done carefully, however, depending upon the style adopted and the manner of handling. If shingles are used, these should be applied on fireproof wall construction. Choice of the roof material would also depend on the type of building, slate or tile having the fire-resisting quality which is desirable. If fieldstone has been used for the exterior walls, it can be left in its natural state which, if laid up with wide flush joints, improves in color with age and requires no outlay for upkeep. Leakage-proof stone or masonry walls can be obtained by use of a coat of waterproofing whitewash, applied with a spray. This tends to drive the material into any open fissures in the stone or joints, and in weathering it produces a pleasing effect. Such an admixture should be applied hot to give the best results, and a little pigment should be added to give it warmth of color.

Casement windows are best adapted for giving the maximum ventilation. Out-opening sash, though more leakage proof than in-opening sash, necessitate inside screens which unless properly installed are not always desirable. More practical, sometimes, are the double-hung windows with exterior screens covering the entire openings. If metal sash could be provided for in the building budget, upkeep would be lessened and annoyance from leaks avoided. Hardware for the windows should be of a sturdy make, especially for casements which are subject to hard usage by members and servants. Lever handle fasteners and pin and bar adjusters are generally the most fool-proof and serviceable.

On account of financial limitations, it is sometimes found necessary to build a club house in separate units, beginning the first operation with what may be considered the most important section, and adding others as the funds permit. If the units are carefully considered and arranged with regard to an ultimate plan, the building may be built in this manner and the result be entirely satisfactory, even though completing the several operations may extend over a period of years. The building cost would necessarily be greater, however, dividing the work in this way, but it is a convenient method which permits a club with limited funds to start with a minimum outlay and work toward the desired end without sacrificing anything in the final results.

Caddy House and Service Court, Plainfield Country Club, Plainfield, N. J.

Roger H. Bullard, Architect

Developing the Country Club Plan

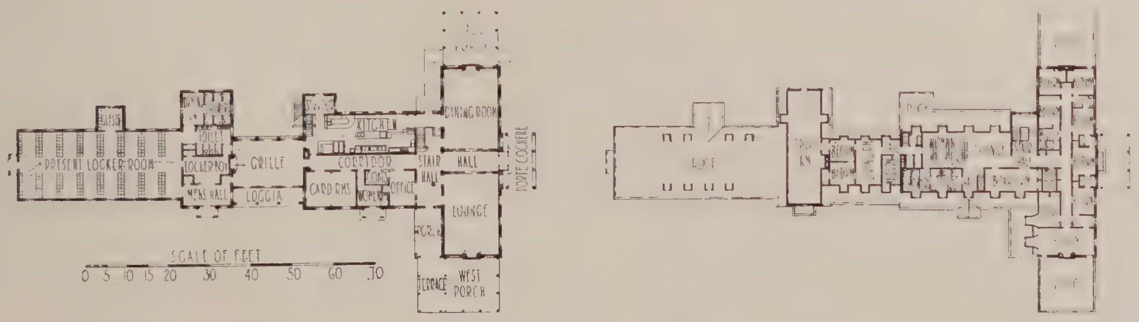
By CLIFFORD C. WENDEHACK, *Architect, New York*

AT the beginning of the sixteenth century, when "Kolf" was played in Holland, we have good reason to believe that this ancient game was devoid of most of its present-day trappings of luxury and consequent complications. From the time that King James the Fourth of Scotland sponsored this insidious game and conferred upon it the title of "Royal" down to the present day, its requirements and exactions have gradually grown, not only in regard to the method of playing, but in respect also to the proper housing of the players and their accessories. Golf now accepts nothing but the best.

The English and Scotch from 1471 to the present time have succeeded in keeping the game with its accompanying club houses within reasonable limitations, but within four decades America has lifted it out of its original simplicity and made of it a highly specialized and scientific factor of country life. If American golfers would follow the example and simplicity of their prototypes, such as are practiced at Deal and Troon in the old world, golf today in this country would be a much less expensive pastime. Having built up the fabric of elaboration and being accustomed to greater conveniences and equipment in this country than abroad, architects and building committees entrusted with the construction of new club houses find no alternative to keeping pace with the times. Golf clubs, like others, have developed.

In the past, as well as at present, the heart of the golf club was undoubtedly the locker room, and around this unit naturally develop all the other elements which compose an up-to-date club house. We shall assume that the bad practice of placing the locker room in the basement has been discontinued by all thinking committees, since the importance of proper lighting and ventilation is now generally recognized, and that the locker room is built above ground. The size of the lockers used and the width of the aisles between them, are invariably the subjects of much discussion with every building committee, which, regardless of the funds available, desires its quarters to be second to none. Every golf club wishes to be in the lead.

There are two types of modern locker rooms in use,—the more extravagant being the single-story building, and the more economical the two-story structure. Since it requires approximately 3500 square feet to house 300 lockers on one floor and 1900 square feet of ground floor space to house the same number on the double-tier basis, it is easy to see why the two-story type is so popular. These figures are based on use of lockers 18 by 18 inches and 7-foot aisles between. The sizes of the areas necessary will be increased in proportion if lockers 18 by 24 or 24 by 24 inches are used. It has been found by constant comparison and practice that these sizes are most satisfactory. The aisles between lockers vary in width from 5 to 8 feet; 6½ feet between doors should satisfy the majority of club members; narrower aisles will cause congestion during times of dressing, and anything wider is purely a matter of increased luxury. In addition to this space there should be provided adjacent to each floor of lockers a battery of showers and proper toilet facilities, and it has been found that from six to ten showers are sufficient for 300 members. Shower stalls should contain 16 square feet, and an ample drying room should be provided. Golf clubs today are usually divided into two classes,— the essentially golf-playing club,



Elevation and Plans of Younktakah Country Club, Nutley, N. J.

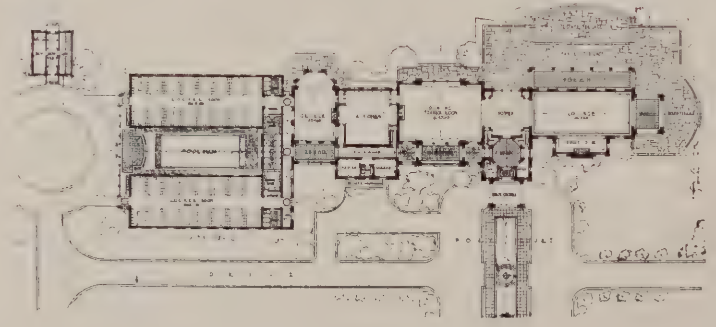
Perspective Sketch, Phelps Manor Country Club,
Englewood-Teaneck, N. J.
Clifford C. Wendehack, Architect

which generally consists of from 300 to 325 full privileged members, and the more numerous type of golf and country clubs, with memberships of perhaps 300 golfers and additional members, such as associate, house, junior, etc. This usually means a membership all told of say 750 people. More recently there have been a great many clubs forming with 600 full privileged members, which necessitates the housing of between 500 and 600 members and provision of locker facilities for the same number.

After having determined the size and character of the locker room, the next consideration is the layout and relation of the units which comprise an up-to-date club house for 300 active members, with golf their chief activity. It is necessary to provide dining facilities for approximately 100 persons at one sitting, and therefore a grill room should be arranged adjacent to the locker room, approximately 30 by 40 feet, with kitchen, storeroom and kitchen preparation room. The kitchen for this equipment should contain 800 to 1000 square feet on the same level with the grill, in addition to the preparation and storerooms, servants' dining room, etc.

Probably the most important factor in the operation of the club is the office and its proper location. This should be located immediately adjacent to the main entrance of the building, with direct communication with the kitchen, service entrance, coat room, stairs to second floor and telephone booths. It would be well to add, in this type of building, several small card rooms. They would be ideally located between the grill and the main portion of the club, so that they may act as soundproofing units. It will also be necessary to provide a women's lounge in conjunction with the women's locker room, showers and toilet facilities. The women's quarters are usually placed on the second floor, although if space and funds permit, it is much better to place these quarters on the ground floor with a separate entrance from the course. It is usually found that in a club of 300 active members there will be a definite need of from 30 to 40 lockers for women, since at all times there are emergencies arising requiring accommodations for the wives of members and guests. Clubs neglecting to provide such accommodations will find sooner or later complaints and handicaps arising therefrom. It is very important to have the communication from the main entrance through to the men's quarters definitely cut off by means of several sets of doors, thus giving maximum freedom to the members who generally compose the substantial part of the membership of this character of club.

It might be of interest to note, before passing on from this type of building, that there are many medium sized golf clubs throughout New England and the South, which serve the summer or winter colonists alone. Under this heading also there may be included numerous club buildings throughout the country which are connected with hotels. These may be classed as belonging to the bungalow type, as they contain no expensive finish, generally no heating plants, little or nothing in the way of eating facilities, and are merely used as gathering places of summer or winter golfers. This type of building of course is the most economical and fundamental example of golf house we have today, and does not constitute a typical illustration of the problem which presents itself to the usual club. The Tokeneke club at Darien, Conn., the plan of which is given here, is a good example of this type of building. This is a summer beach club and is of the simplest type. It will be noticed, however, that the position of the office in its relations to the entrance and the centralization of activity follows the general principles laid down for all such club houses. The club rooms are interchangeable in regard to their uses, and may be thrown open into one large area for social functions. It would be well, however, in designing this small type of building, to bear in mind the fundamental principles which apply to all sizes of buildings alike,—namely, the convenience and equipment of the locker room



Plan

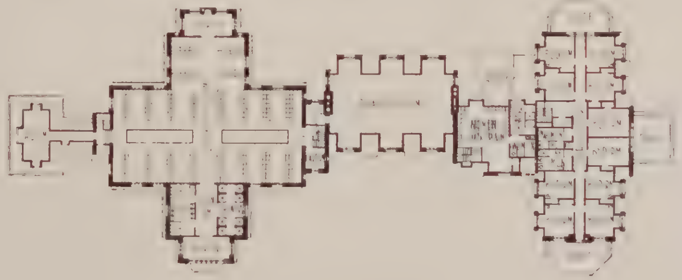
Perspective Sketch of Winged Foot Golf Club, Mamaroneck, N. Y.
Clifford C. Wendehack, Architect

and the proper control of all units directly and easily from the manager's office. These details are important.

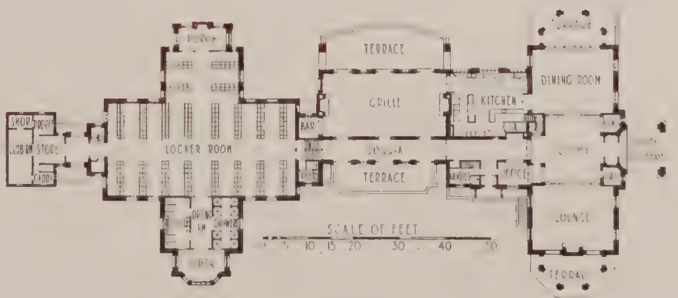
Let us now consider the more usual and numerous type of house to meet the needs of golf and country club combined. It would be unwise to set forth any definite rule for sizes and number of units required for this type of building, since conditions vary in different parts of the country, and the type and character of membership necessitate a different plan for each and every case. The officers of this type of club should bear in mind that they will have successors on the executive board and should wisely look ahead, eliminating for them as much upkeep, maintenance and repair cost as possible. In order to do this, they should build permanently, substantially and with materials which require the least amount of watching and replacing. It is very difficult to tear down and replace units, once they have been constructed, and from experience I should strongly advise building fewer units with durable materials rather than erecting at one time a complete club of inferior construction. This applies particularly to the country club, since the non-playing membership grows more rapidly than the golfing membership. This membership usually fluctuates, but it does not congest the course, and therefore is inclined to add to the number using the building in greater proportion than do the golf members. The social life of the club receives an impetus difficult to estimate upon completing a new building, and the finer the building the more desirable and active these members become. Consequently, it has become difficult in many cases to know exactly to what extent social requirements may grow.

In view of these conditions, I should strongly recommend that building operations be started with the locker room unit, including showers, toilet facilities and the professional shop, with its proper storage spaces for clubs, and with a workshop and show cases. Before this is done, however, a general plan should be determined upon, with the proper sequence of rooms and orientation carefully considered in relation to the golf course and the points of the compass. Having procured the locker room, the club will now be able to function, and the revenue from the course and active members' dues will become available at the earliest possible time. There should then be added, as required, the kitchen, the grill room, the heating plant, administrative offices and dining rooms. This will produce another source of revenue, and the character of the club will very quickly be determined from the patronage which ensues from installation of these vital units. The sizes of the lounge, the women's quarters, card rooms, reception rooms, porches and terraces can be very accurately determined, and if the scheme is properly planned, they may be enlarged or made smaller as the conditions develop from the operation of the original units.

As an illustration of this there is included here the plan, as originally laid out, for the Phelps Manor Country Club at Englewood-Teaneck, N. J. This club was organized for 600 playing members, and the course was laid out for 45 holes of golf. After determining the approximate location of the club house, the golf course was laid out in perfect relation thereto, as may be seen by the location of the first tees and 18th greens of the two courses. The



Second Floor



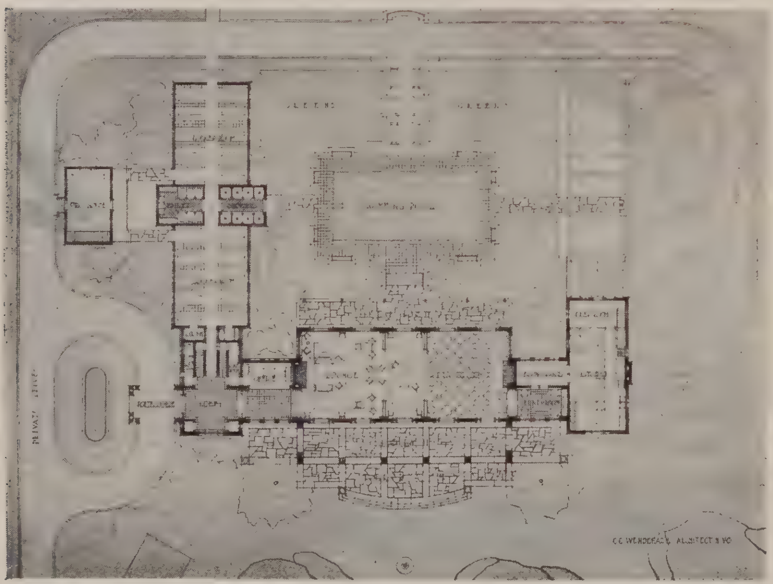
First Floor

Perspective Sketch, Tokeneke Country Club, Tokeneke, Conn.
Clifford C. Wendehack, Architect

points of the compass being the next consideration, the plan for the club house was developed with extended open views from all the required rooms, which were placed at one side of the house, while the approach and service quarters were placed at the opposite side of the building. Having established these fundamentals, the office was put at the entrance side of the structure, at the focal point of all activity. Upon entering this club house it is impossible to avoid passing the office and equally impossible to miss the magnificent view. Passing on through the lobby, one enters the foyer, which is a high vaulted room, at the end of which is the large arched opening through which is an extensive view of the courses. To the left of the foyer is the dining room, and to the right the lounge. These rooms also command excellent views of the courses, and are planned to be used separately or in conjunction.

The plan shows a series of porches and terraces arranged to meet the various levels and practically encircling these rooms without excluding light and air from them. From the entrance lobby there is a direct connection with the locker room and grill. Complete isolation of the men's quarters from the rest of the club is obtained by means of doors between the card room, passage and the loggia. Beyond this point the club is entirely for the use of the men members. The locker rooms, which are arranged in two wings, are ventilated and lighted by a continuous row of windows on either side, and toilet facilities are arranged along a continuous line of plumbing for reasons of economy. A very popular feature of this equipment is the swimming pool, placed between the two locker room wings, rendering it easy of access.

This plan illustrates admirably the possibilities and advantages of the unit system of building. As each locker room wing contains 300 lockers, one wing is being completed at a time. The growth will then extend to the grill and the kitchen, and the rest of the plan can be contracted or enlarged as developments require without injury to the general scheme. Careful comparison of this plan with that of the Winged Foot Golf Club will make clear the difference of the sizes of units required for a country club and a purely golf club of approximately the same size and membership. In the latter case the house is being built to meet the requirements of 600 playing members without additional memberships or any particular social expectations. Here the portion of space allotted to women and general visitors ends at the outer door to the loggia, from which point back to the professionals' house the club is for the use of men only. Conditions are found to be reversed as to sizes. The grill is about equivalent to the size of the lounge required for the country club. The general dining room is about equivalent in size to the usual grill room, and the lounge becomes merely a waiting place for the wives and friends of the members. The locker room, completed in 1924, is of the two-story type, containing 600 lockers, 24 inches square, with very generous aisles, approximately 7½ feet in width.



Plan

There is one general consideration which will be found worthy of careful thought in designing any modern club building, namely, the possibility of opening several units into one, which produces economy in operation and availability of large areas for dances and social functions in the country club, and large dining areas for banquets, dinners, lectures, etc., in the purely golf club. Much space and money can be saved by this means of planning. The problem of housing the professional shop and providing storage necessities for clubs is one which varies largely in modern practice. There is little doubt but what the interests and convenience of members

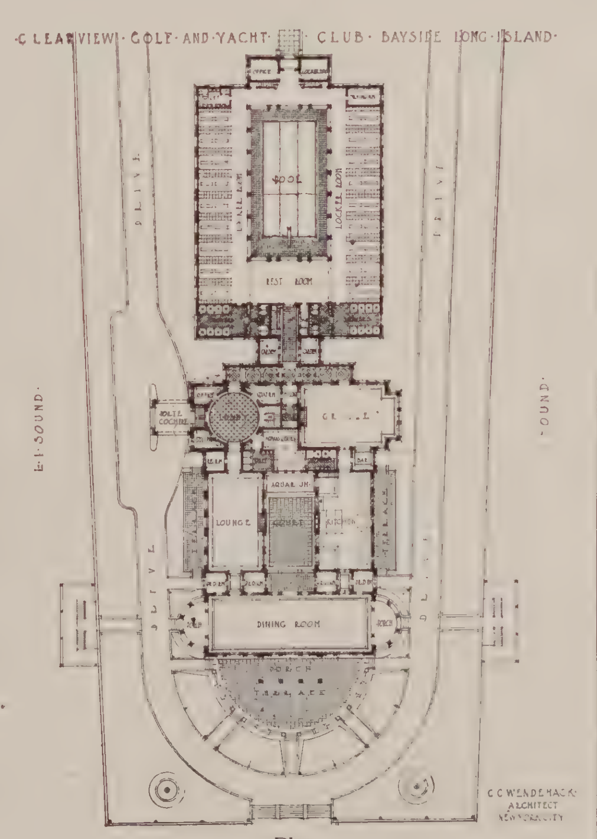
Perspective Sketch, Clearview Golf and Yacht Club, Bayside, N. Y.
Clifford C. Wendehack, Architect

are best served by placing this unit in close conjunction with the locker room, and in many instances the sentiment is strongly for this. However, it has decided disadvantages, inasmuch as it brings the caddies up to the main door of the locker room, tending to congest and obstruct these entrances. There are also other disadvantages, that of bringing the women players, seeking their clubs, into close proximity with the men's quarters, and an increase in the cost of insurance unless there is a definite outdoor passage of fireproof doors between these units, because of the electrical machinery in the professionals' house. Therefore, where possible, it would be advisable to place the professionals in a separate building, connected to the locker room by a covered passageway or arcade. This is by far the best plan.

One of the most troublesome and yet necessary details of a golf club is the provision of a building for the proper housing and control of the caddies. These boys must be within easy reach of the caddy master and also out of sight from the club house. The housing and care of the caddies require very special study in each particular case, as is evidenced by more interest being shown in this subject at the present day than heretofore. We shall not attempt to go into the arrangement of this detail of the golf course, other than to say that a caddy shelter should be placed behind a natural barrier and given every possible thought and care in order to raise the standard of efficiency of the boys employed in this very essential part of golf life.

It has been a very common practice in the past to construct sheds and workrooms for the storage of course implements, fertilizers and seeds in close proximity to the main building. This should never be permitted, and ways and means should be found to establish within easy reach of all parts of the course a labor center, consisting of a group of buildings properly designed to house the materials which proper care of every good course requires. Connected with these buildings there should be living quarters for the greens keeper and a few of the regular workmen and, if possible, the servants required for service in the club. Insurance statistics show that a large percentage of fires in golf clubs have been caused by the careless habits of the employes housed under the main buildings. If they could be transferred to livable, sanitary quarters in a farm group, much trouble and annoyance would be avoided.

In the Clearview Golf and Yacht Club there has been developed a plan which has an unusual appeal to the sportsman's imagination. Due to the combination of yachting facilities and golfing interest centered around 36 holes and many kinds of membership, this club presents probably as complex a problem as it is possible to find. It would not be wise to use this as an illustration of the usual conditions found in our country clubs, but its extraordinary uniqueness illustrates very admirably the accuracy by which the fundamental principles of club planning may be applied to even the most unusual building programs. As its name indicates, the club is being developed to serve the dual purpose of accommodating a large golfing membership in addition to being a rendezvous of yachting parties in Long Island waters. The architectural style is closely related to that of the Colonial house as originally developed on Long Island, with a suggestion of the architecture of the Italian lakes. Constructed on a pier extending 853 feet into the Sound, the main approach will be from the highway at the base of the pier. Since the membership is divided into two classes, and since the yachting members will



Plan

Perspective Sketch of Ferncliffe Country Club, West Caldwell, N. J.
Clifford C. Wendehack, Architect

not have the privileges of the golf course, this separation of parts, under the control of the office, is a very essential consideration in the club's administration.

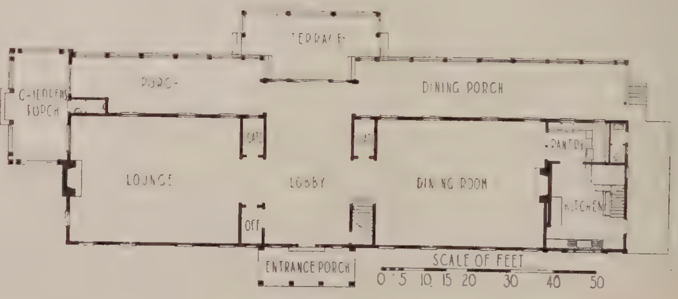
Approaching the club by water there are landings provided at the front and side of the pier, and immediately adjacent to these landings are the dining room, lounge and broad terraces, from which a long, uninterrupted view up the Sound is had. The restaurant is handled in such a way that the capacity will be very flexible, and the most important outlook has been given to the dining room, which will stretch across the front of the building for over 100 feet, with broad, open porches at either end. Private dining rooms, located immediately back of the main dining room, can be utilized for dinner parties or small receptions on dance nights. The lounge is designed to serve as a general living room or on occasion as a ballroom, and opens onto a broad open terrace. Separating the lounge from the kitchen is an open court, at the back of which is an aquarium, where live sea food will be kept in salt water. The first story locker room has a large rest room between the stacks of lockers and overlooking the swimming pool, for cards and other recreation. The second floor locker room will open upon the pool side, and will also be used as a spectators' gallery for swimming matches, which will be held occasionally.

One of the most troublesome of the questions which continually present themselves to building committees is the advisability of including bedrooms in the club house. Opinions differ greatly in regard to the policy of providing this feature, and while the subject is threshed out by each newly formed building committee, the sum total of opinions and advantages as observed by the architect invariably points to much the same conclusions. Club bedrooms are a liability and not an asset in the majority of cases. The need for them is theoretically for the convenience of club members; in actual practice, however, this convenience affects only a very small percentage of the membership of the average club.

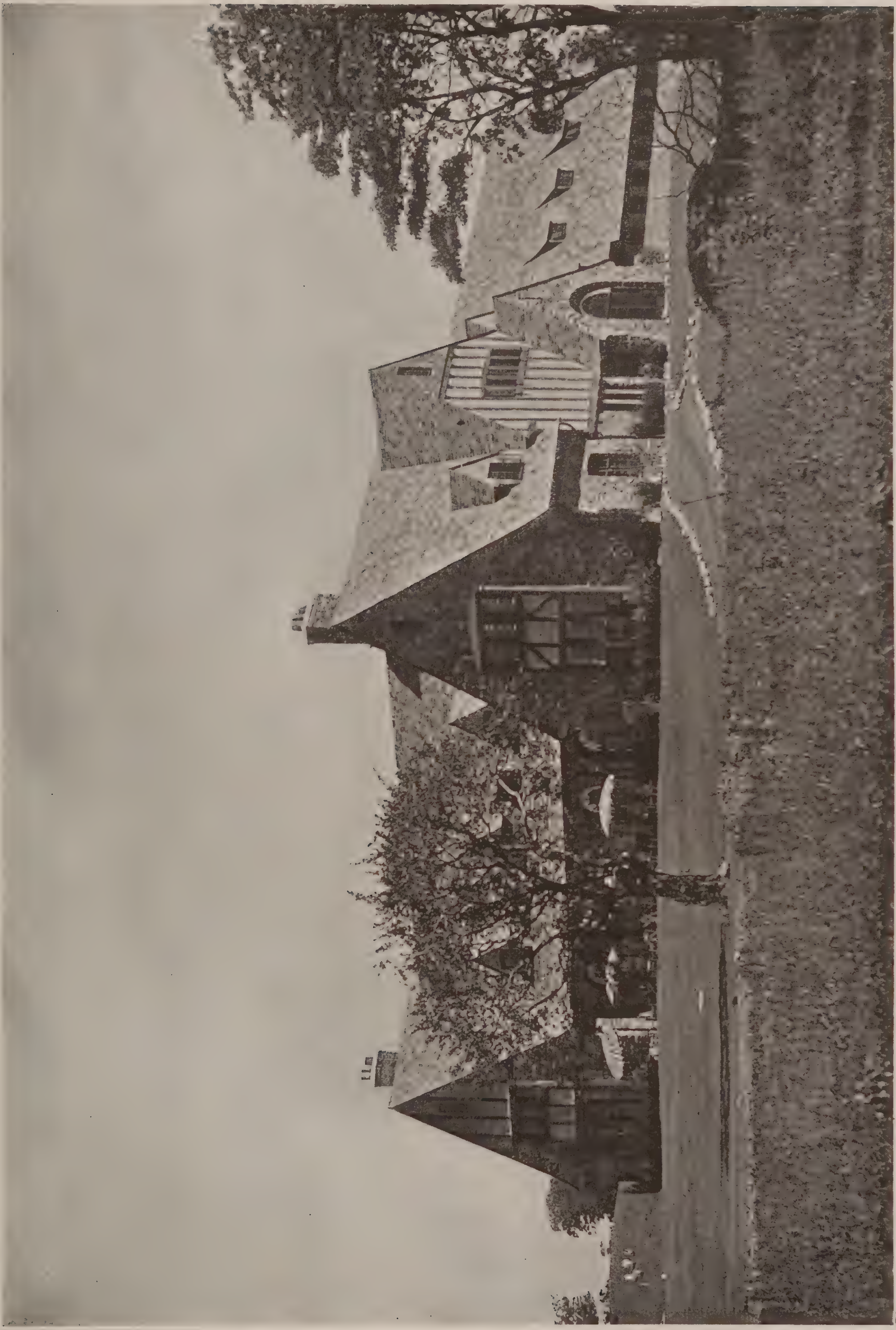
In this day of highly specialized and conveniently equipped hotel service, we expect more service in our clubs than it is possible with their facilities to supply. If this service is given to those few members who occupy rooms, the cost to the club is out of all proportion to the amounts charged for such service. There should be bedrooms for the convenience of transient members, but it is found that in too many cases they are used as permanent homes. This requires day and night service, and if the rooms are occupied during the winter months, a completely organized hotel service must be maintained. The remedy for these conditions has been found, in most instances, by the use of dormitories, each containing five to ten beds as the space will permit. The revenue from these dormitory beds will be about equal to that of private rooms. All requirements of the week end guest will be taken care of this way, and it is quite safe to say that this type of accommodation will not be taken advantage of by anyone for too long a time. This permits group service and toilet and shower facilities, which are cheaper to install and to maintain.

It is becoming a matter of general knowledge that the planning and maintaining of modern golf clubs, regardless of their sizes and character, have become a highly necessary factor of our country life. Study and specialization of the subject have become necessary in order to produce buildings which will function without waste and with the minimum maintenance costs and which will serve satisfactorily large groups of diversified types of people. The managers of country clubs are realizing more and more the impossibility of financial existence in this day of high costs without the smoothly running mechanism found in our hotels and business organizations.

It is to be hoped that future generations will benefit by the efforts being made at present to promote efficiency in every form, and that the pleasure and health derived from golf and other outdoor games will some day be within the means of all classes in America, and to this we seem to be rapidly coming.



Plan



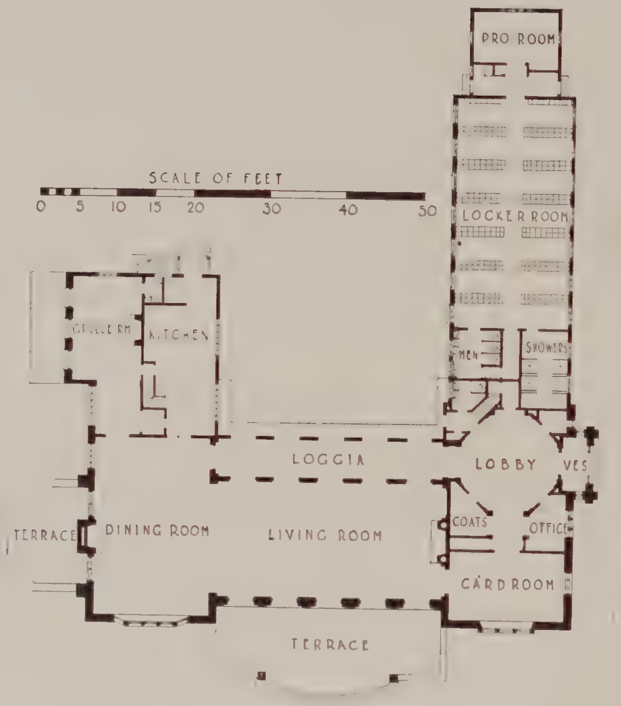
Photos. Kenneth Clark

Plans on Back

ELEVATION TOWARD PRACTICE GREEN

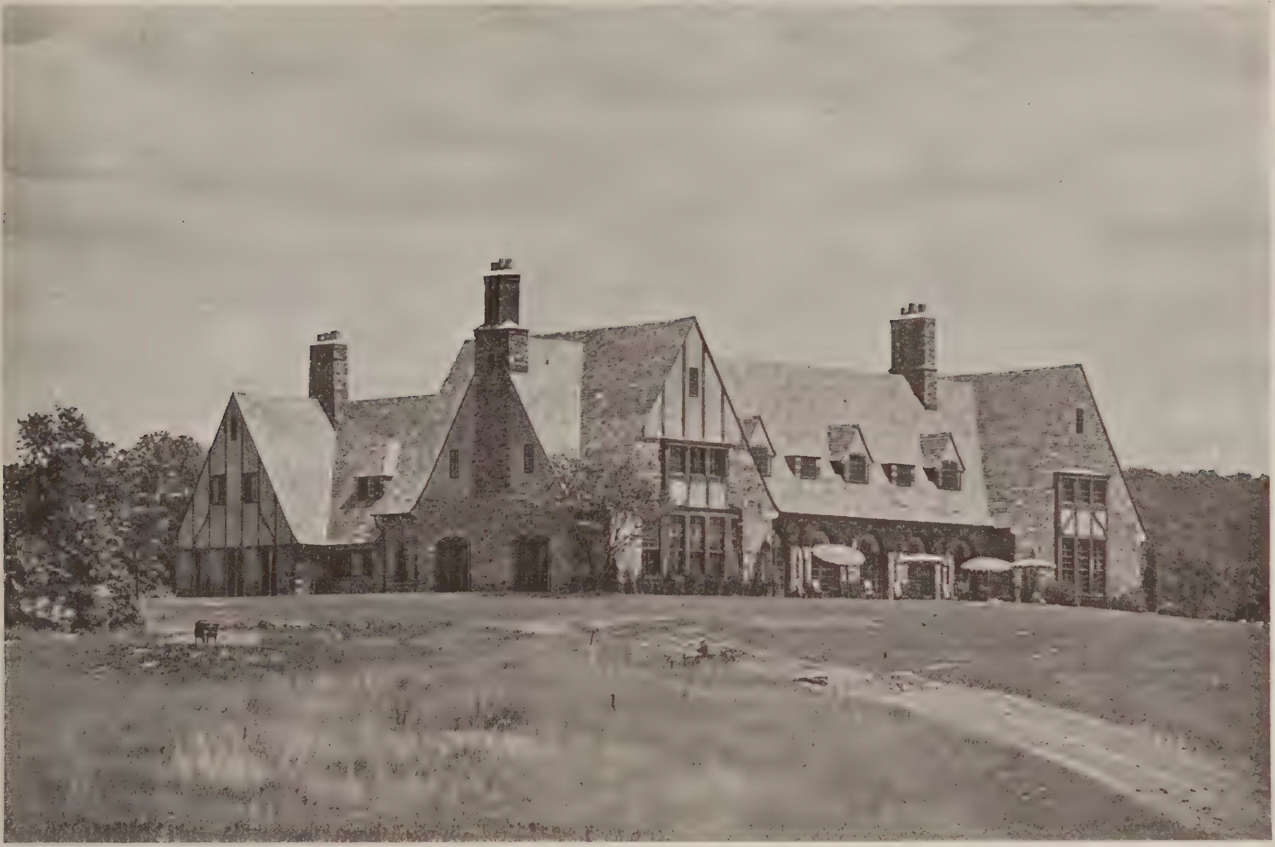
NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT

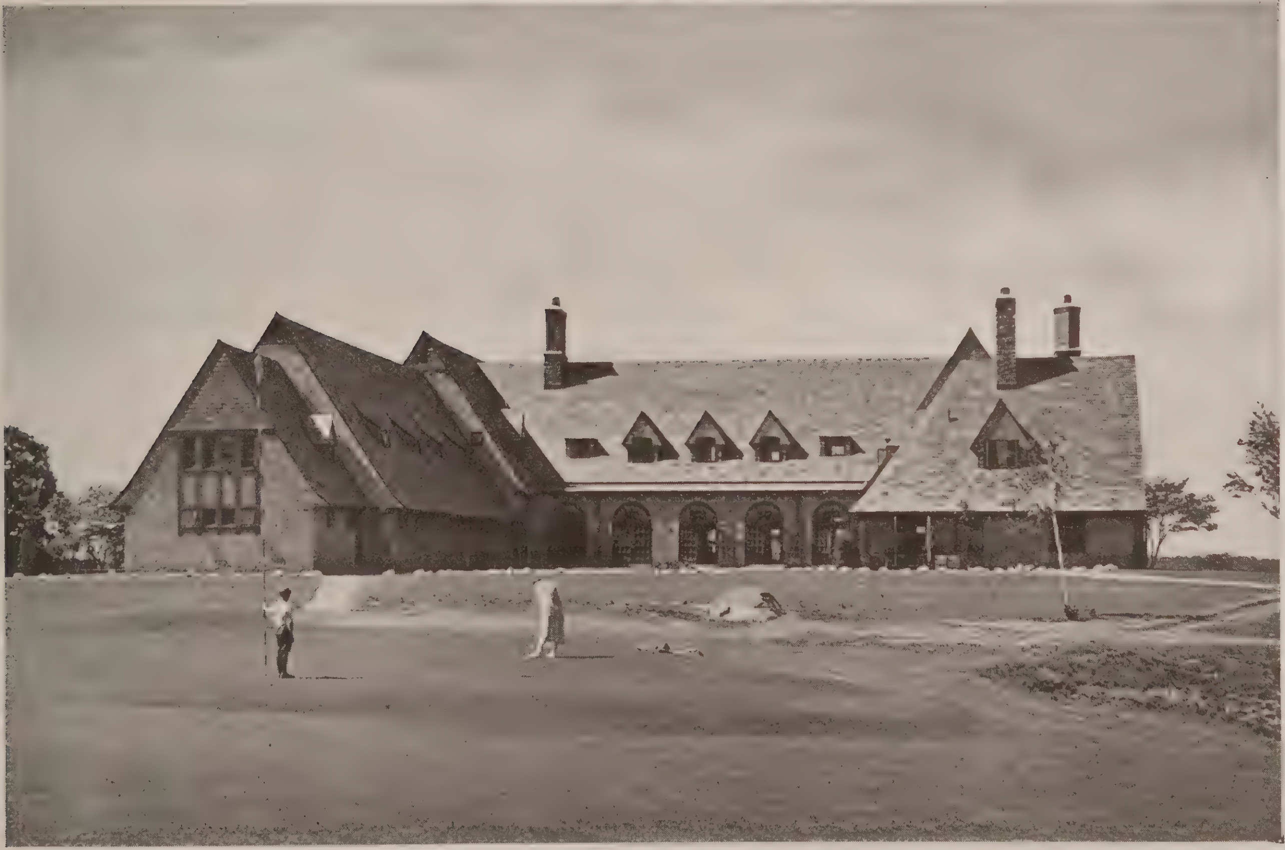


NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT



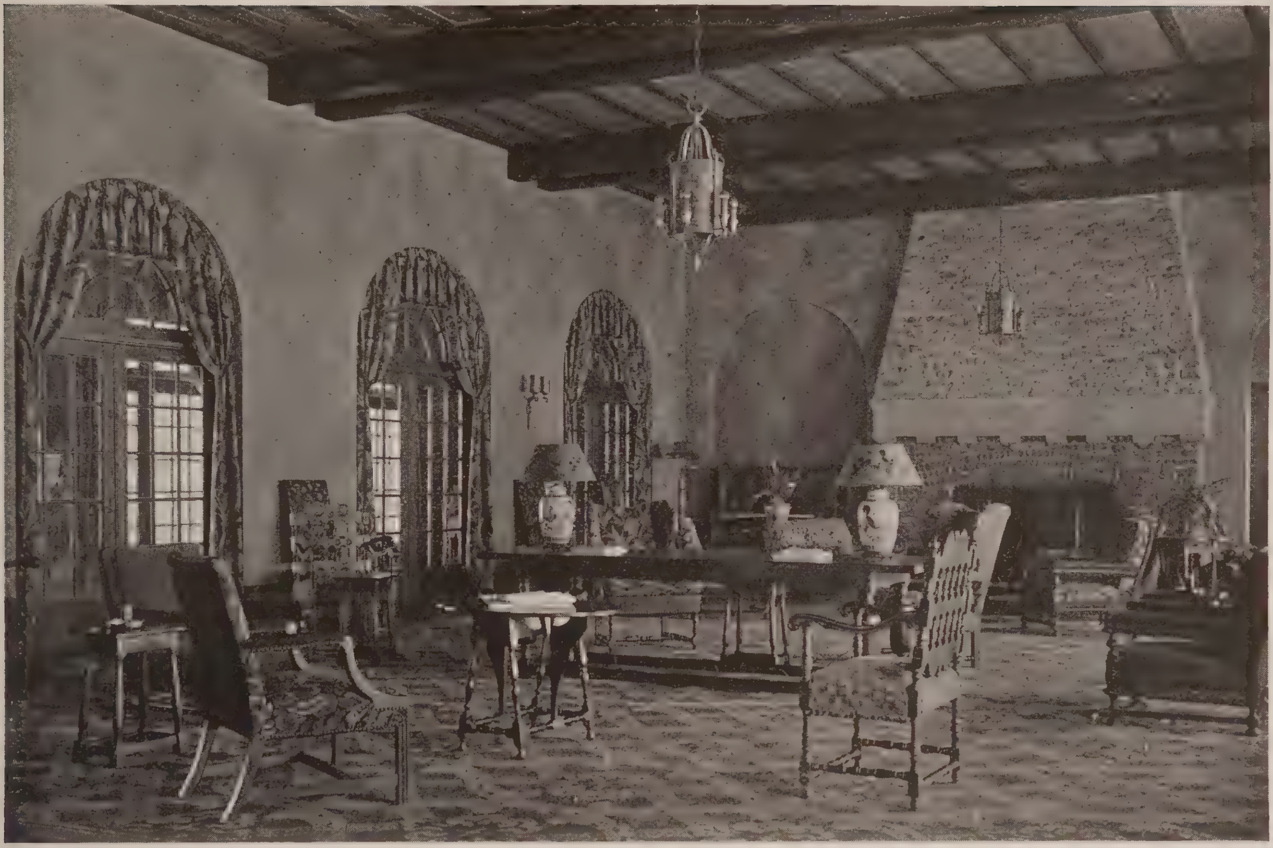
ELEVATION OVERLOOKING FIRST TEE, FOURTH AND NINTH GREENS



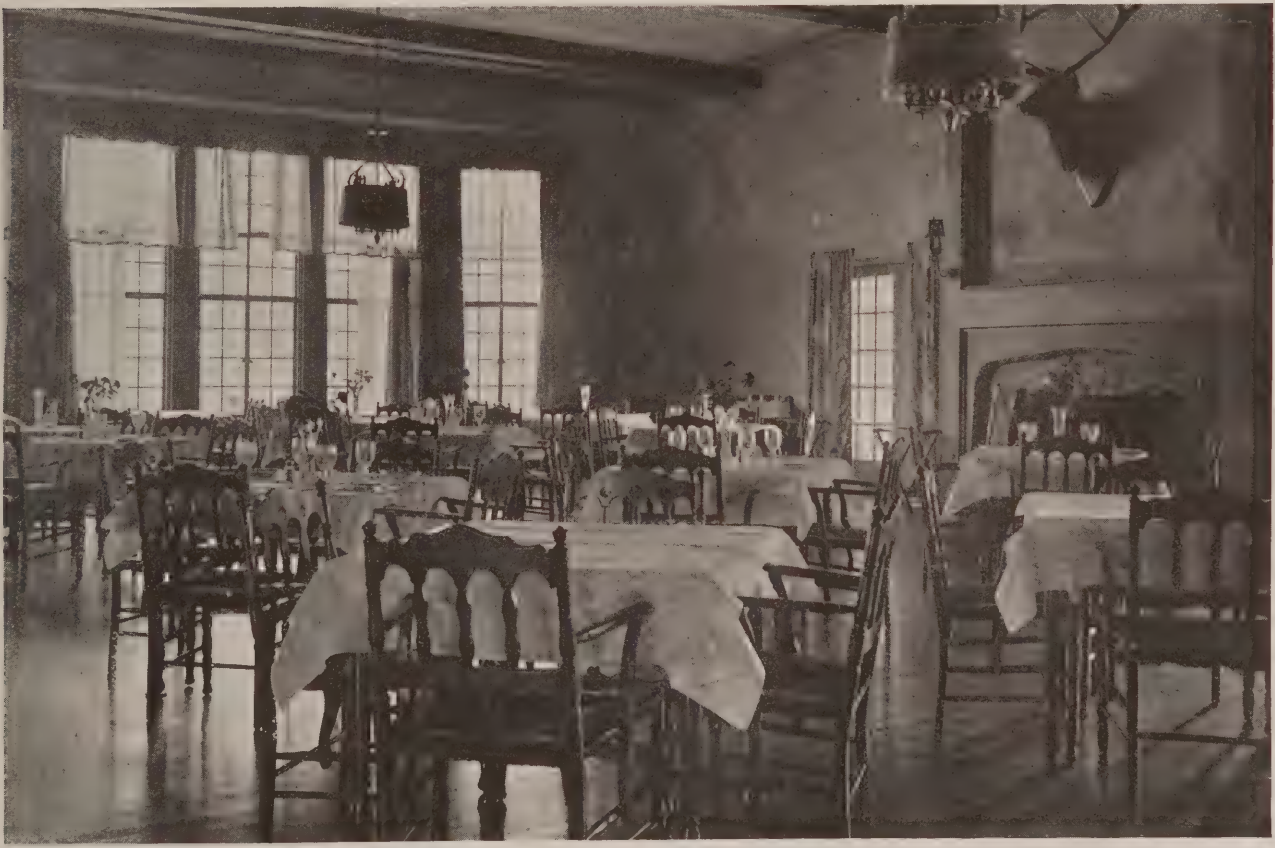
ELEVATION FACING EIGHTEENTH GREEN

NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT



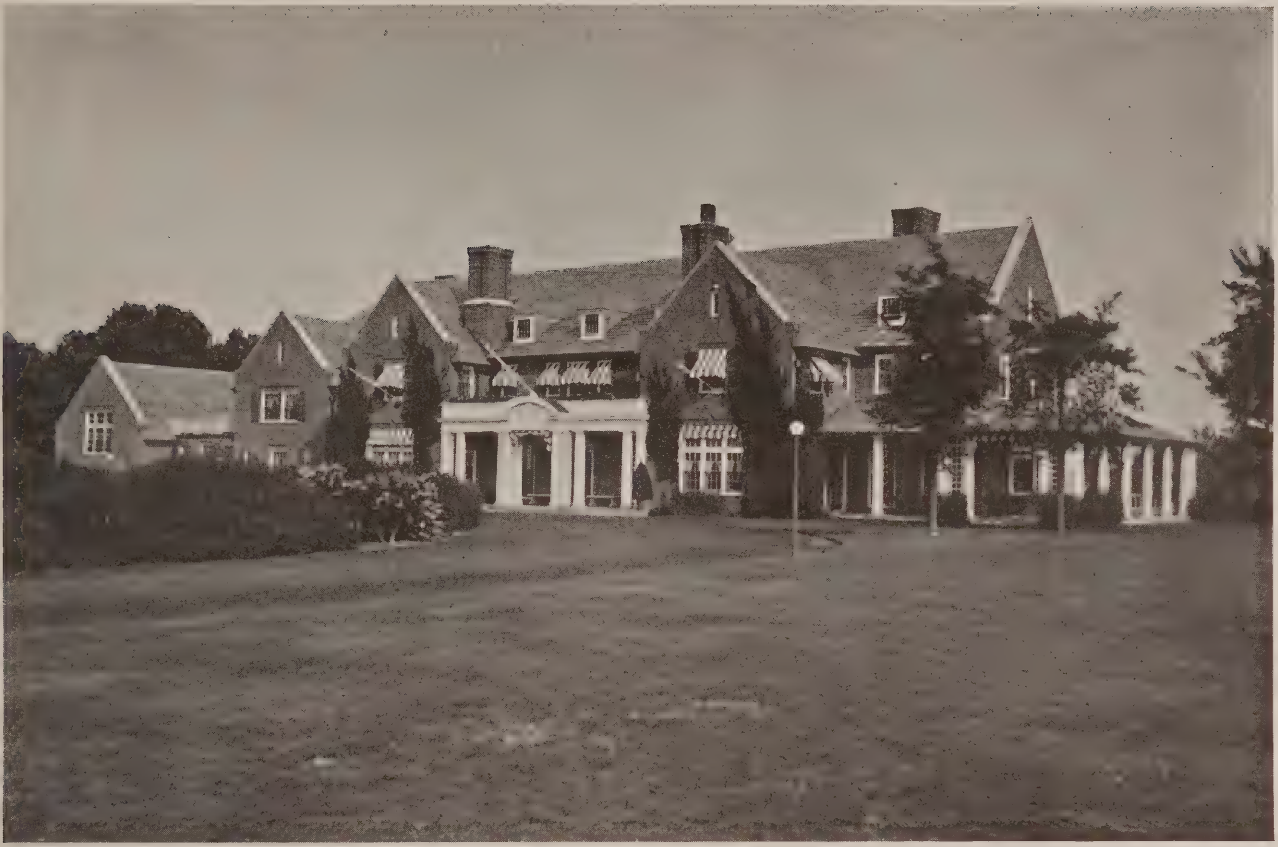
LIVING ROOM OR LOUNGE



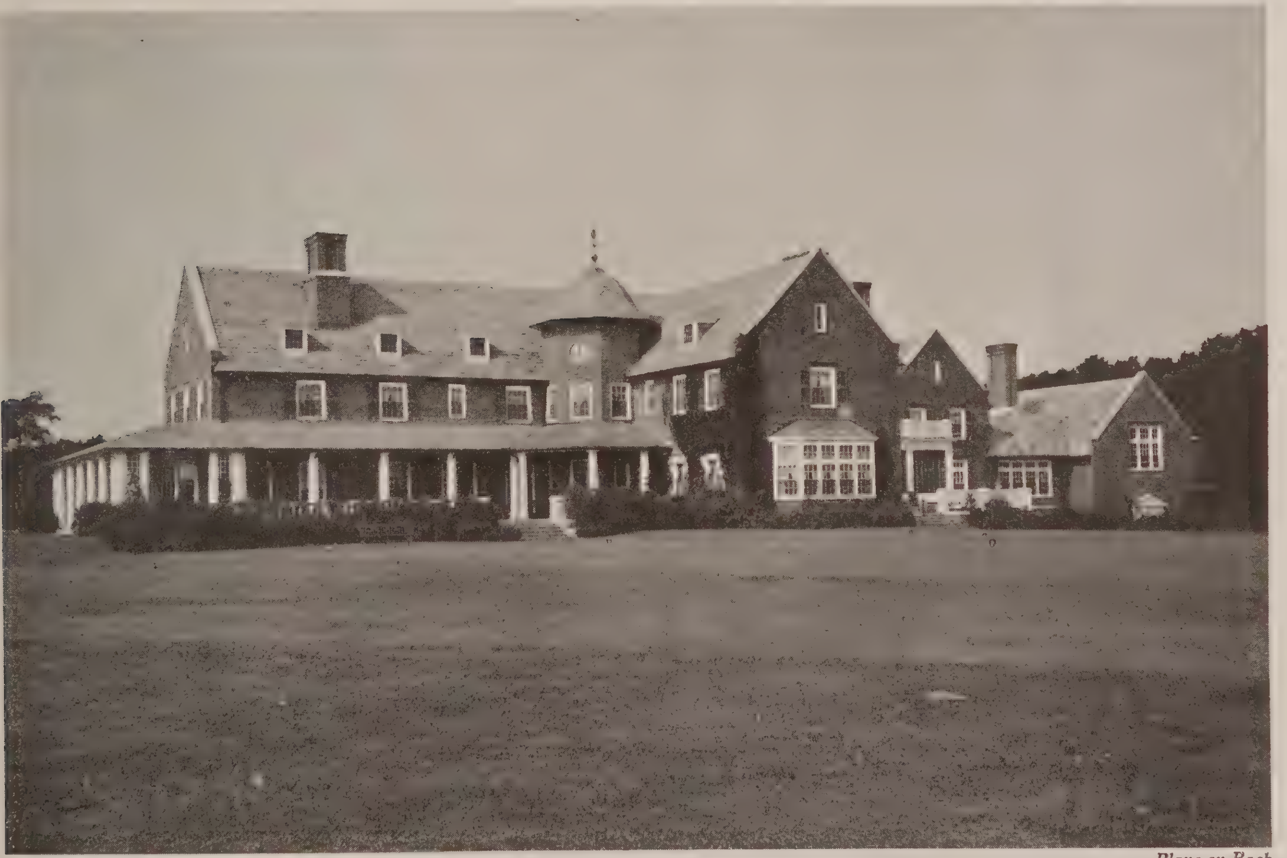
DINING ROOM

NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT



ENTRANCE FRONT



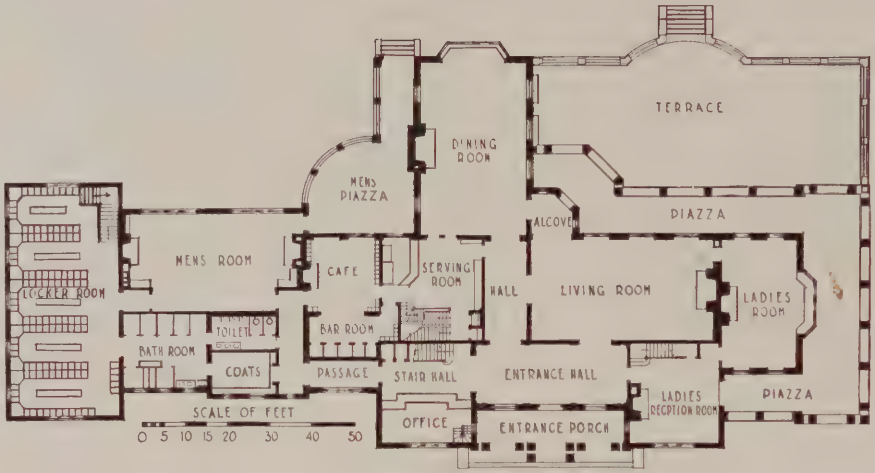
Photos. Paul J. Weber

Plans on Back

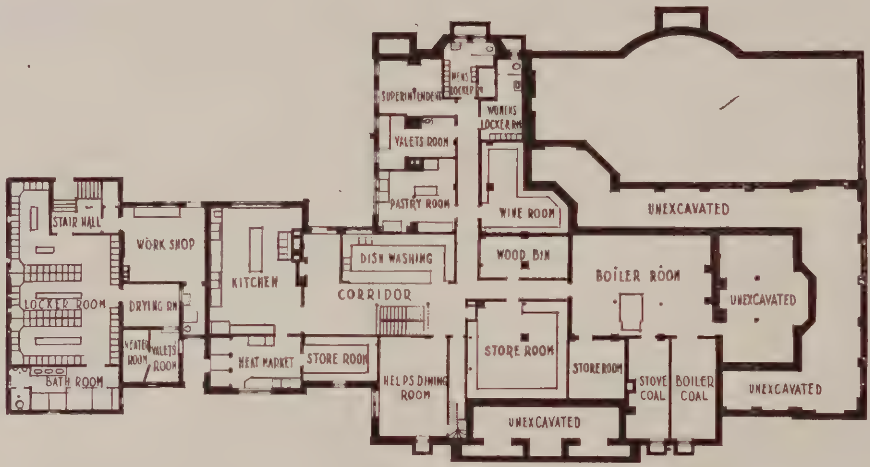
ELEVATION OVERLOOKING PRACTICE GREEN

ESSEX COUNTY CLUB, MANCHESTER, MASS.

PARKER, THOMAS & RICE, ARCHITECTS



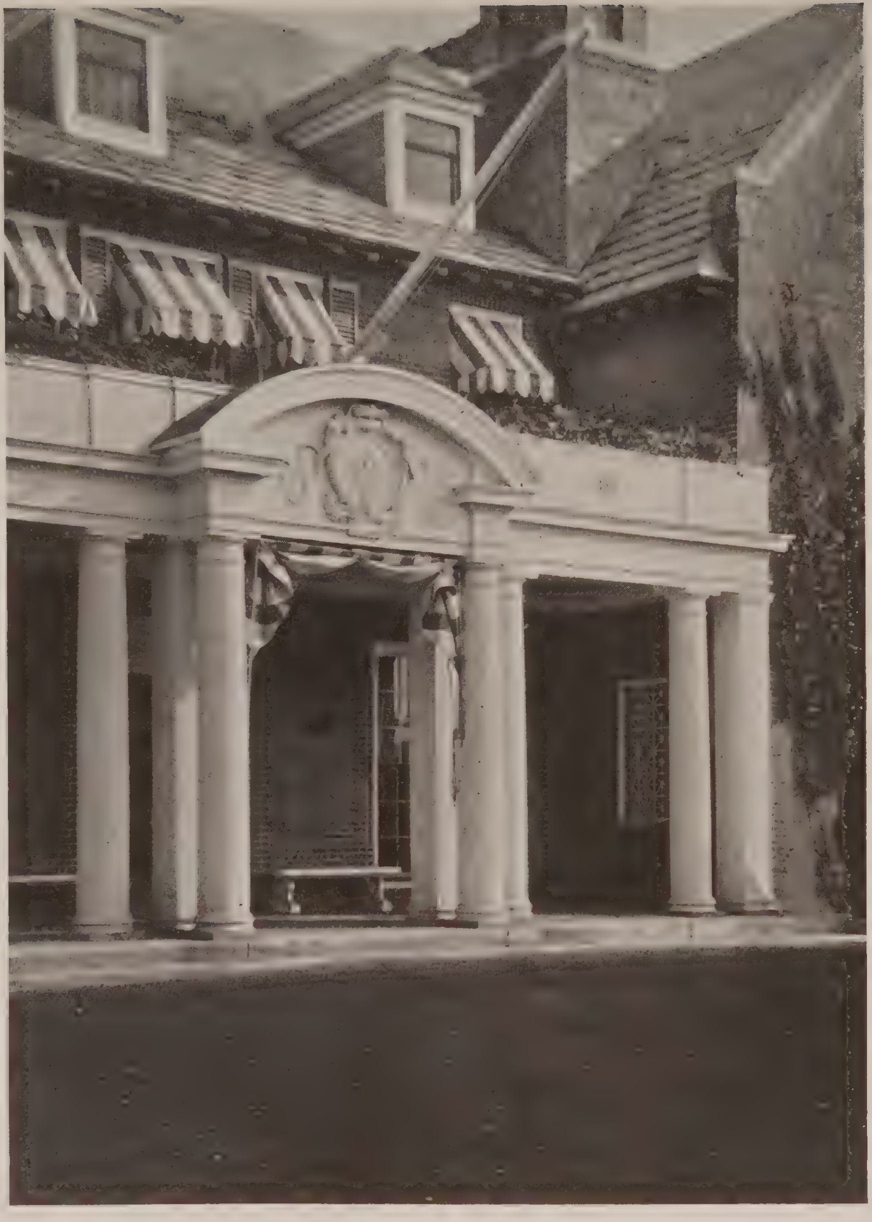
MAIN FLOOR



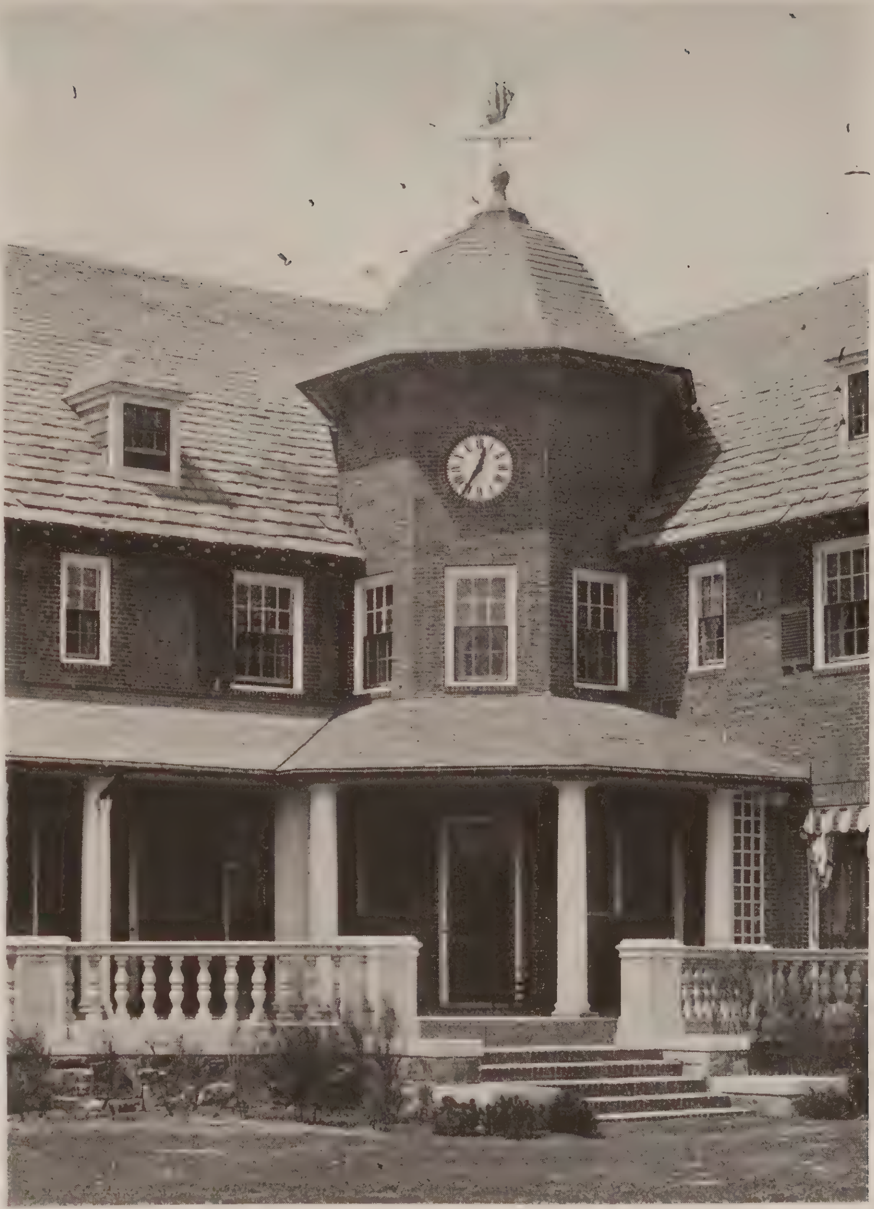
BASEMENT

ESSEX COUNTY CLUB, MANCHESTER, MASS.

PARKER, THOMAS & RICE, ARCHITECTS



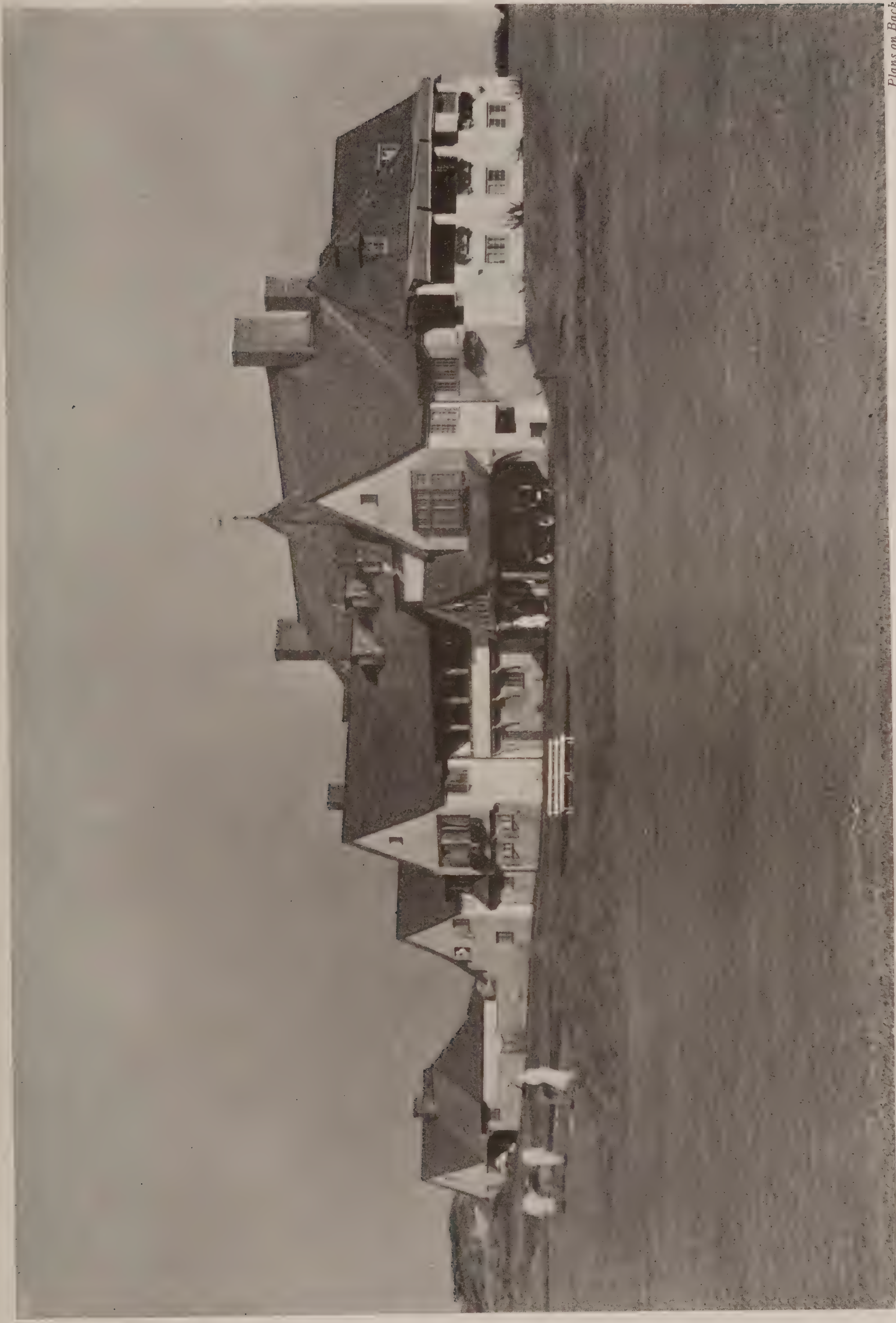
DETAIL OF ENTRANCE PORCH



DETAIL OF TERRACE ENTRANCE

ESSEX COUNTY CLUB, MANCHESTER, MASS.

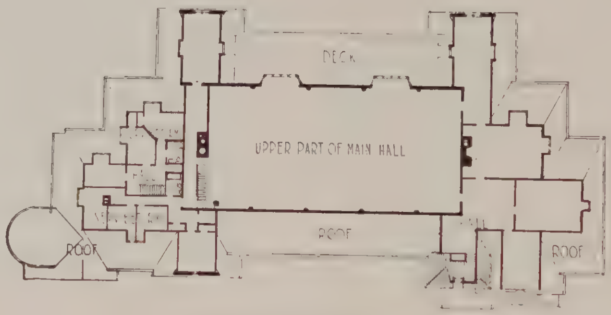
PARKER, THOMAS & RICE, ARCHITECTS



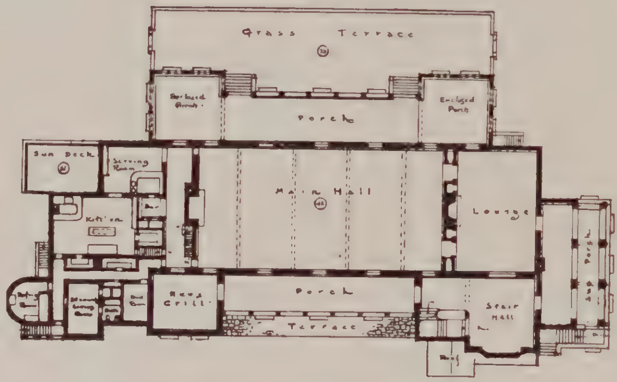
Plans on Back

Photos. George H. Van Anda

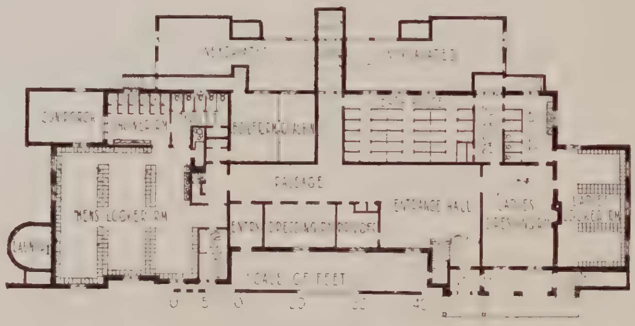
THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.
ROGER H. BULLARD, ARCHITECT



SECOND FLOOR



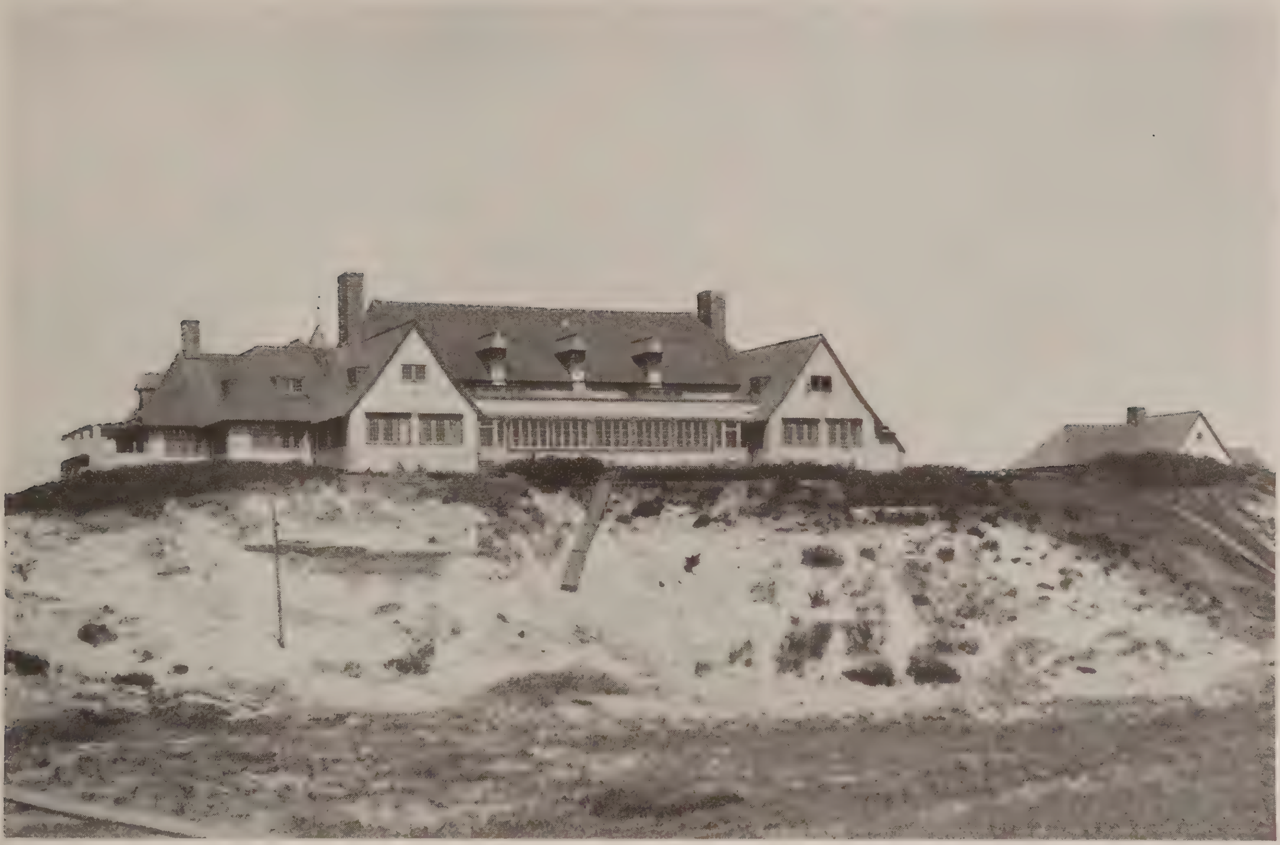
FIRST FLOOR PLAN



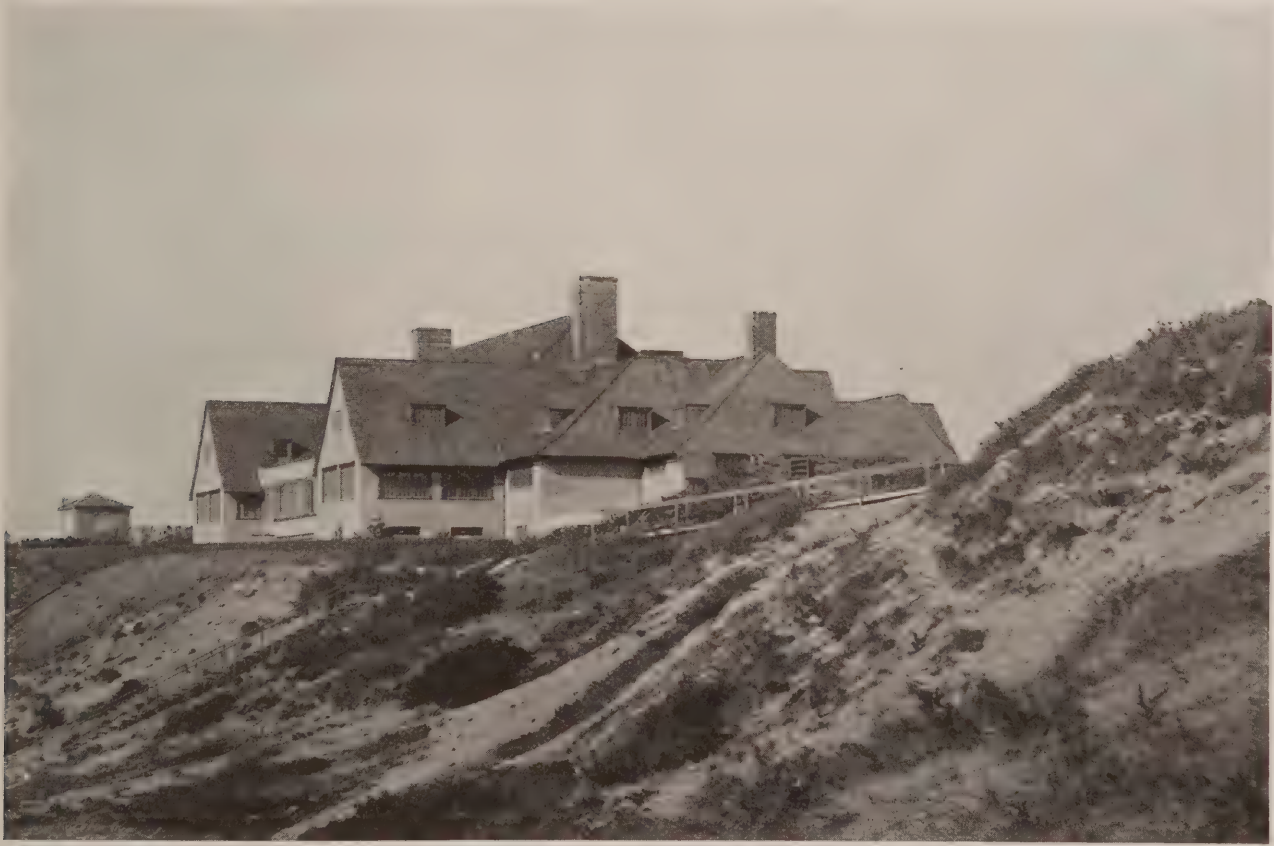
BASEMENT

THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.

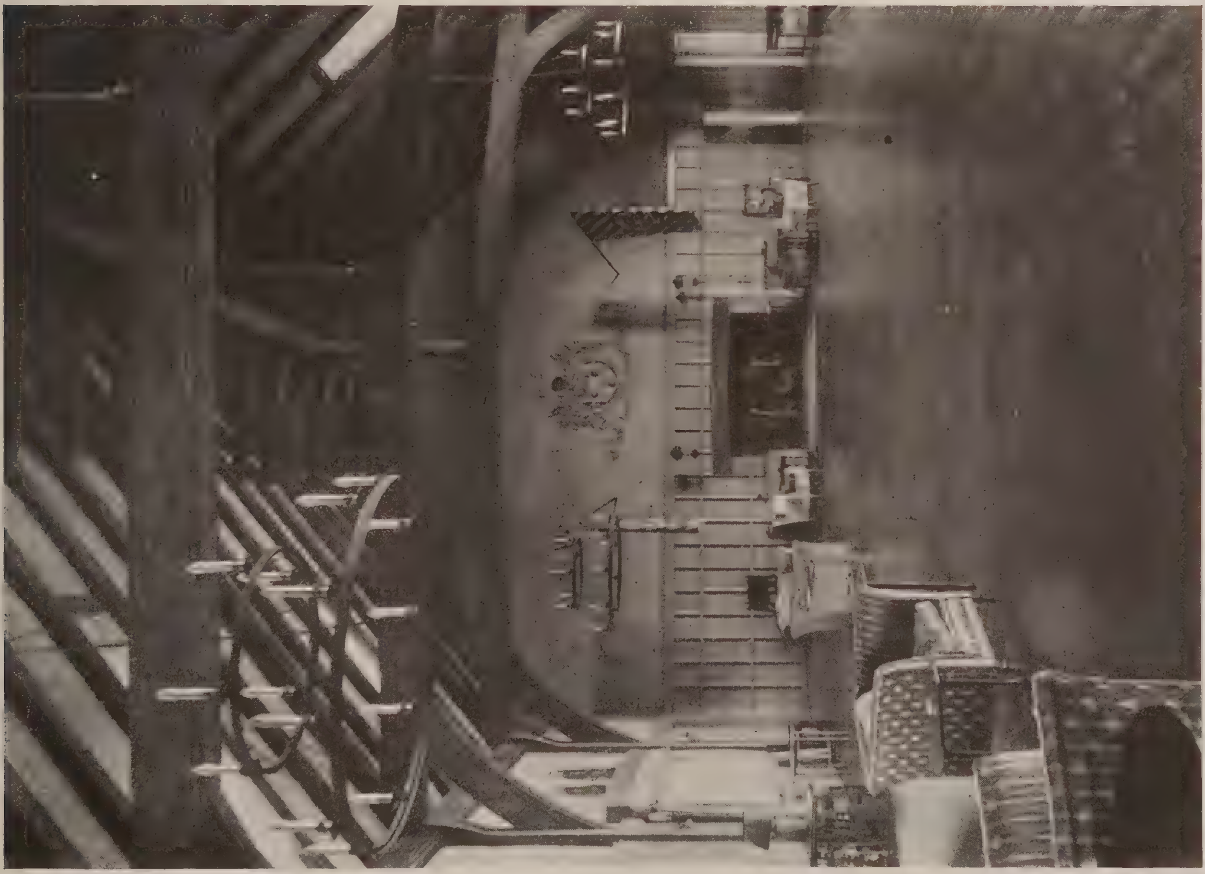
ROGER H. BULLARD, ARCHITECT



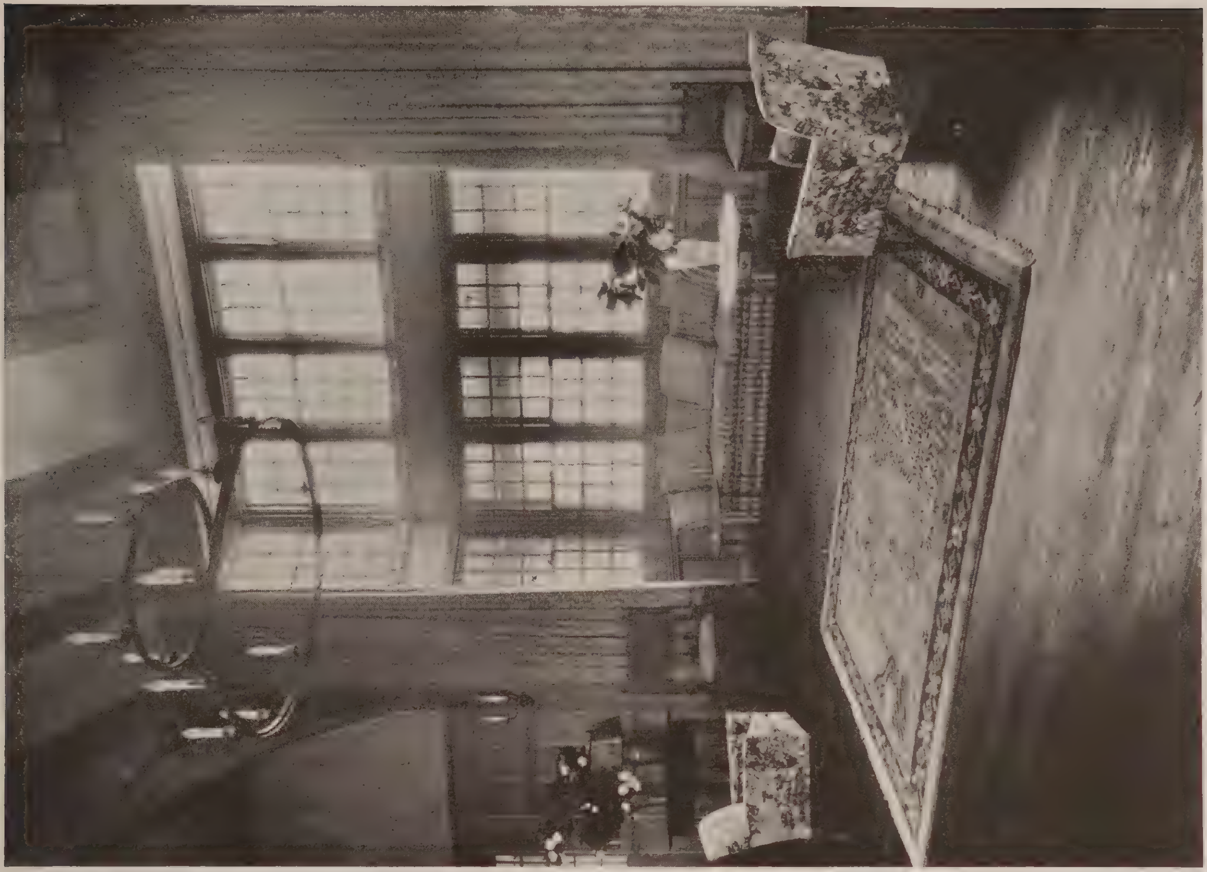
ELEVATION OVERLOOKING THE OCEAN



VIEW OF CLUB FROM THE SAND DUNES
THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.
ROGER H. BULLARD, ARCHITECT



VIEW OF LIVING ROOM



DETAIL OF LIVING ROOM

THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.
ROGER H. BULLARD, ARCHITECT

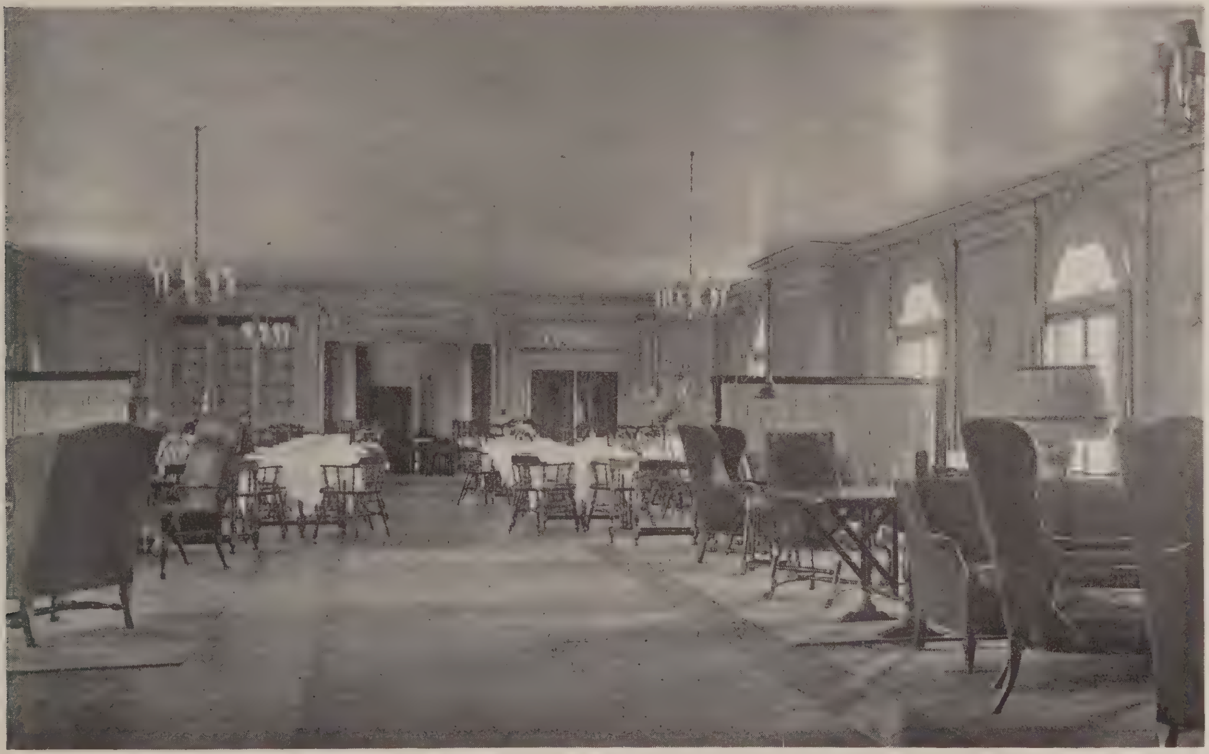
Interior Architecture of the Country Club

By JAMES DWIGHT BAUM, *Architect, New York*

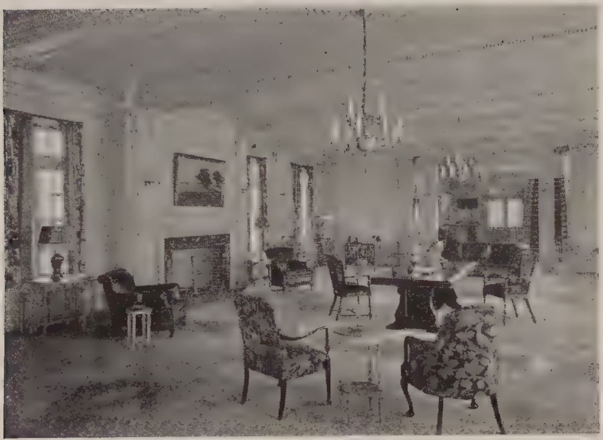
WHEN we speak of interior architecture, we mean that part of the decorative treatment of a room which is conceived and designed by the architect and built into the structure as a permanent background or setting for the more perishable and ever-changing decorations and furnishings. Interior architecture invariably suggests, if it does not definitely demand, decorations belonging to the certain style or period in which the architect designed the room. Where the designer is not permitted to select and have executed under his own supervision the interior decorations for a room, his original design may be made or marred. This situation, which often arises, is quite as likely to happen in the decorating of club interiors, city or country, as in the decoration of houses, urban or suburban.

As club houses are, after all, semi-public or community homes, it is justifiable to emphasize the importance of their interior architecture quite as much as in the private house. Furthermore, the cost does not so often have to be considered in securing the attractiveness of the architectural background in a club house. This may be accomplished by simple means just as well as by elaborate treatment. Rough plaster walls of pleasing textures; door and window openings carefully studied as to shapes and sizes; coved or vaulted ceilings; interesting wall textures; stairway and ceiling details executed in rough hewn boards and beams, produce architectural interiors of real interest and charm. Such rooms are found in the Maidstone Club at East Hampton, and in the Golf Club at Detroit, which are illustrated on page 147.

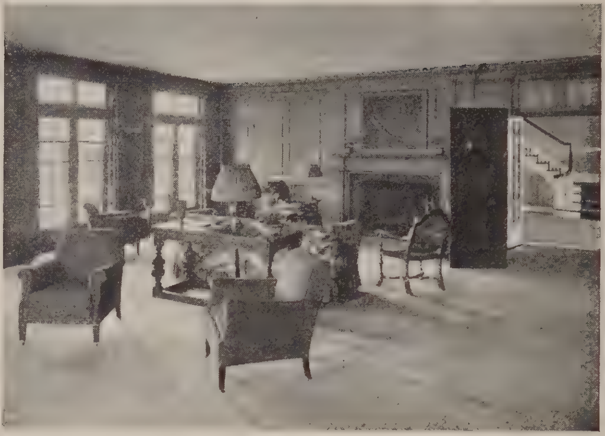
Wall paneling, with or without pilasters, whether executed entirely in wood or with wood mouldings on plaster, makes a dignified architectural background to a room. Painted paneling, after the Georgian and Colonial precedents, gives an opportunity for colorful combination of walls and furnishings, especially appropriate for the more formal rooms in a club. The combination lounge and dining room in the Mid-pines Country Club at Southern Pines, N. C., an illustration of which is shown on this page, is an excellent example of a successful interior architectural treatment. Here panels, pilasters and an ornamental frieze give the room dignity and charm. The fluted pilasters and decorated cornice and ceiling beams of the lounge in the Inwood Country Club at Inwood give scale and architectural character to this large room, as may be seen from the illustration on page 146. Here also is shown an illustration of the living room known as the "Vanderbilt Room" in the Piping Rock Club, on Long Island, where delicacy in the mouldings of the mantelpiece, the wall panels and the cornice produces an atmosphere of great refinement and charming simplicity, always to be preferred to ostentatious and elaborate decoration. The illustration of the dining room in the new Congressional Club at Washington, on page 146, shows the effective use of plain, rough plaster walls, broken by well proportioned arches and combined with a heavily



Combination Lounge and Dining Room, Mid-Pines Country Club, Southern Pines, N. C.
Aymar Embury, II, Architect



Main Lounge, Inwood Country Club, Inwood, N. Y.
Morrell Smith, Architect



One of the Living Rooms, Piping Rock Club
Guy Lowell, Architect

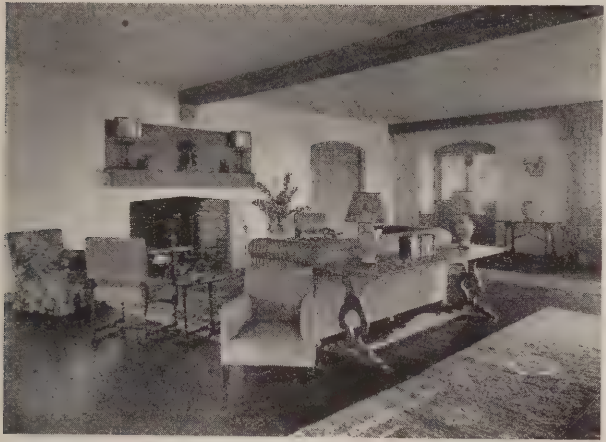
beamed ceiling richly decorated in color after the Italian manner. The floor of marble in several colors, laid in an unusual design, gives a further pleasing contrast to the plain wall surfaces. The massive stone mantelpiece at one end is the chief motif in the design, and determines the scale of this room. The introduction of potted palms and ferns gives an unpleasant note of informality in this otherwise purposely and successfully formal room. The dining room in the Grosse Pointe Country Club at Detroit, illustrated on page 147, is pleasing because of its simplicity and airiness. The architecture of this room is distinguished by its good proportions, its series of glass casement doors, marble floor and its occasional trellises, suggesting an enclosed veranda.

There is probably no older or more important or more frequently used detail of interior architecture than the chimneypiece. As it is almost invariably the chief, and often the only, feature of architectural interest in a room, it should be carefully studied as to size and detail. No set or rigid rules can be laid down as to the size of a fireplace and mantelpiece in relation to the wall space it occupies. Much depends upon the style of architecture in which the room and mantelpiece are designed. Certain styles permit use of larger openings than others for the same wall area. Whether Italian, Elizabethan or Georgian, the chimneypiece establishes the scale and the style of a room. Two excellent examples of club house chimneypieces are illustrated on page 148. Each is the chief architectural feature of the room it adorns.

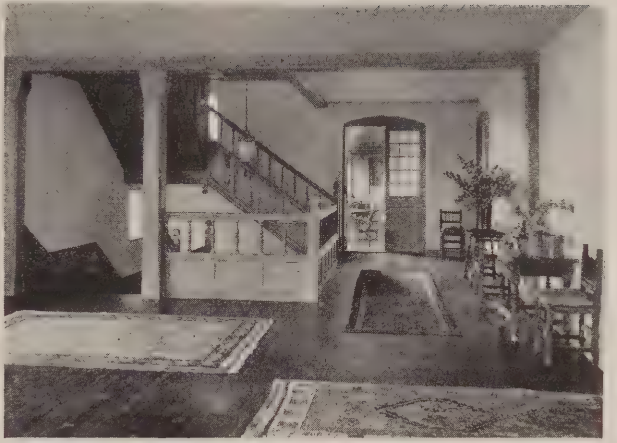
There are several other details which play an important part in the interior architecture of the club house. Probably the most important is the staircase, the treatment of which depends largely upon its importance in the plan. If the club house is large and contains card rooms and private dining rooms on the second floor, and bedrooms for members on the third, the staircase should be made an important architectural feature in the design. It should be given a position of importance in the plan and should be designed in the style which is carried out in the rest of the building. This is done in both the Piping Rock and Inwood Country Clubs, where in the former instance the main stairway, plainly seen through the doors of the principal living room, is carried out in the Colonial style, which is in keeping with the character of the building itself. The stairway in the

Dining Room, Congressional Country Club, Washington
Philip M. Julien, Architect

Entrance Hall, Plainfield Country Club, Plainfield, N. J.
Roger H. Bullard, Architect



Women's Reception Room



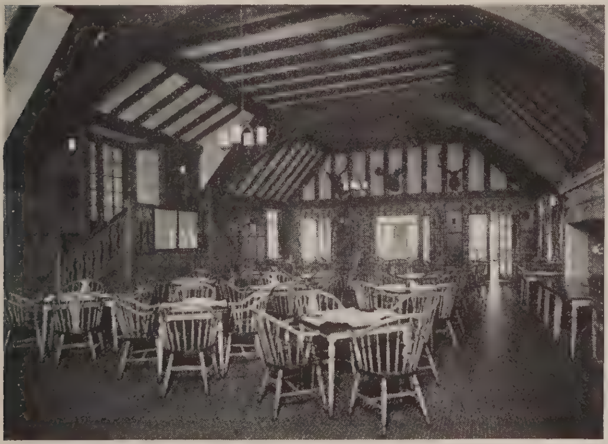
Stair Hall, Second Floor

Maidstone Club, East Hampton, N. Y.
Roger H. Bullard, Architect

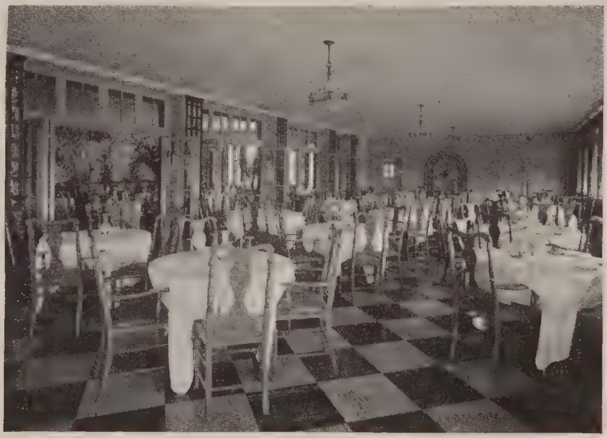
Maidstone Club is simple and rugged, to harmonize with the early English style in which this club house is designed. Heavy newel posts, capped with rough hewn balls, and short heavy balusters set in string boards which take the place of the usual balustrade, give a sturdy picturesqueness to the architecture.

In the French and English styles, during both the Renaissance and the immediately succeeding periods, the stairway was made one of the chief architectural features of the house, however large or small. The larger and more pretentious the house, the grander was its main stairway. In the earlier Italian and Spanish houses and palazzos, the stairway was often inconspicuously enclosed by walls, with a barrel vaulted ceiling, opening unobtrusively off the entrance or even the side hall through open archways. This was not always the case, by any means, as in many of the early Renaissance palazzos of Rome, Genoa, Florence and Venice are found some of the most magnificent and monumental stairways in the world. So in the small club house, where the second floor is a less important part of the plan, and where only a few bedrooms and baths are located, the stairway may well be placed in an inconspicuous and unobtrusive position, for example off the corridor leading to the men's locker room. If the club is large and entered through a lobby or foyer hall, off which open the office and coat rooms, an architectural treatment of some character and importance should be had. The first impression made upon entering a club house should be pleasing and satisfying. If, however, the club house is not large and pretentious, then the lobby or foyer hall may be dispensed with and the lounge or living room be entered directly from the front porch. Here again the room should be carefully designed to have a distinctly architectural character. Several small clubs of this description have most attractive main rooms, which are used as lounges in the day time, and as dancing places at night, when occasion requires.

Making this main room a story and a half high, or even two stories high, will add to its dignity and importance. A balcony at one end and a large fireplace at the other, often give a successful treatment. A long balcony along one side, as in the Field Club at Greenwich, Conn., under which casement doors lead onto an enclosed porch, may add to the architectural quality of the room. Living rooms carried out in a



Grill Room, Detroit Golf Club, Detroit
Albert Kahn, Architect



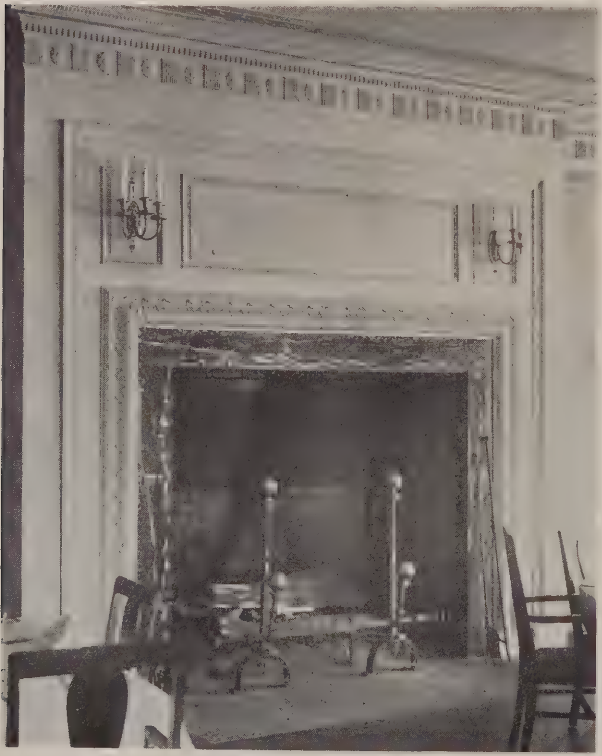
Dining Room, Grosse Pointe Country Club, Detroit
Albert Kahn, Architect

simple adaptation of the English Tudor and Stuart styles are often found in buildings having Colonial exteriors. Although this inconsistency is not advocated, when successfully carried out the result more than justifies the liberty taken by the designer. There is a very general feeling today that Colonial and Georgian living rooms are too stiff and formal to give the desired effect and atmosphere of informality and relaxation which should be desired in every country club. Of course the furnishings of a club have much to do with its homelike and restful qualities, but, as has been said already, the interior architecture sets the keynote, which will always be followed by a discriminating and trained decorator.

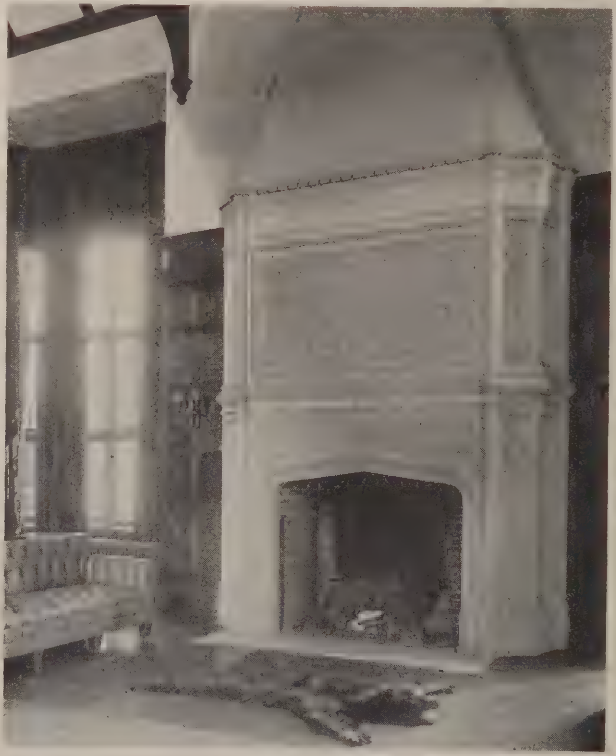
The earlier English styles permit a greater warmth and depth of color in decorative as well as in architectural treatment than do the Georgian and Colonial styles,—unless an architect can persuade the building committee to let him paint the paneling, pilasters and trim in deep tones of buff, yellow or gold, such as are found in some of the delightful old rooms now preserved in the new American Wing of the Metropolitan Museum. If the living room or "great hall" cannot be carried up two full stories in height, then the second floor joists must be supported on concealed steel girders, making possible a beam treatment for the ceiling. On no account should piers or columns obstruct the floor space of either a lounge or a dining room, which at times may be used for dancing. No matter how small the club, adjacent to the main lounge or living room there should be an enclosed porch, sun corridor or reception room where people may sit when not dancing. Such a room should be separated from the lounge or temporary ball room by an open arcade, by rows of columns, or by many wide casement doors. In one of the most recent and most exclusive country clubs in the vicinity of New York, no place adjacent to the "great hall" or lounge is provided for people to sit during winter dances. In the summer, through the many casement doors of this hall, rest between and during dances may be had on the wide open veranda which extends the length of the hall; but this is not possible in winter, and its lack is often keenly felt.

A dining or grill room should always be accessible from the "great hall" or lounge. In many clubs the dining room and not the living room serves as the ball room when occasion requires; but of the two plans, the more practical and convenient seems to be that in which the lounge or living room serves as the dancing place. This leaves the dining room free to be used for serving dinner before and supper during the dance, which of course is desirable.

What has all this to do with interior architecture? It has in fact a great deal to do with it, because the choice of architectural and decorative treatment of the lounge and dining room depends largely upon which of these two rooms is to be used for dancing or whether, as is sometimes planned, the two rooms may be thrown together by the folding back of doors or by the sliding back of wall panels. So much of the artistic success of a club depends upon the careful study and designing of the permanent features, known as "interior architecture," that too great a stress cannot be laid upon this part of the problem of designing a successful golf or country club house.



Fireplace in Dining Room, Essex County Club, Manchester, Mass.
Parker, Thomas & Rice, Architects



Fireplace in Living Room, Nassau Country Club, Glen Cove, N. Y.
Chas. A. Leeming, Architect

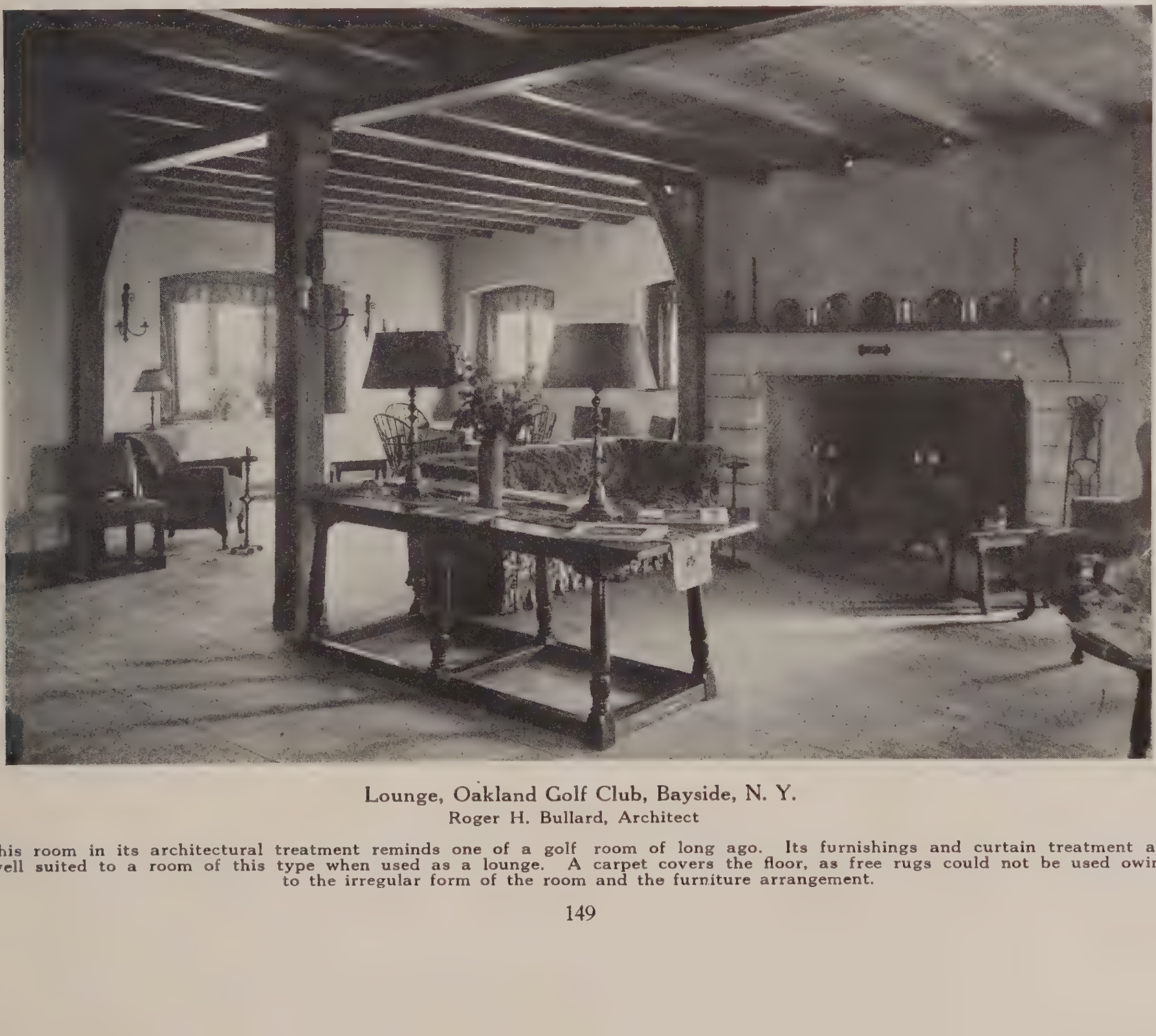
The Furnishing and Decoration of a Country Club

By BARNET PHILLIPS, *Interior Decorator, New York*

THE day is past when the architect can heave a sigh of relief when his designs have been passed on finally by the building committee. There is now the important matter of furnishings and decorations, and these he must consider. If the furnishings go into the hands of a furnishing committee, even with the very best of intentions, or when a member is or has a friend in the furnishing business, the results are likely to be most distressing unless they have had a guiding hand. It, therefore, appears to me a case of necessity for the architect to either control, guide, or actually install, if you will, furnishings that are appropriate and fitting for his building. More than ever today a building, and particularly a club house, is judged not by its architectural features, but by its furnishings and decorations, many people having a keen sense of the fitness of things—after they are completed.

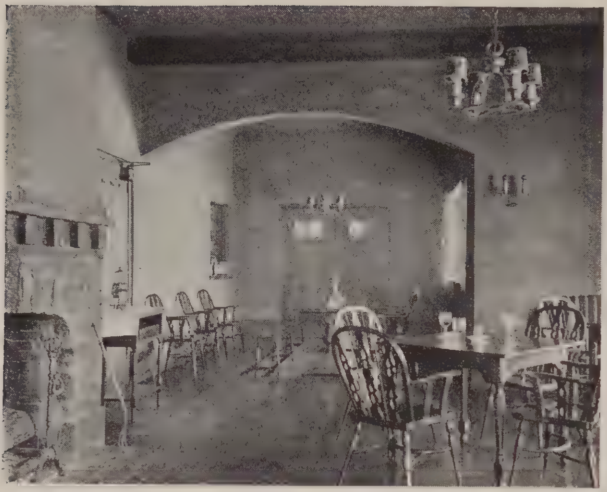
Most people believe, whether they admit it or not, that they know something about furnishings, and I venture to say a large percentage of people have some sort of taste in regard to decorations. Many of their ideas have merit, and I have sometimes found it quite possible to take their points of view and develop them in such a way as to procure the very results they were striving for. Having won their confidence, the road is not very difficult to successful completion of the furnishing and decoration of the building. Of course I speak only from my own experience, in working with many committees on diversified types of club houses and other buildings.

The old time club house was simple, almost to the point of austerity,—one large room of the country inn type, where the men gathered around the fireplace on chilly days and made good cheer. Wood chairs, board floor, possibly a few pictures, with the stymie, of course, the center of interest, and as for color, this was supplied by the red coats, the wine, and the ruddy cheeks of those sturdy devotees of the game. Times have changed indeed! There were no women in the old time clubs, no dancing or week ends, and I doubt if thought was ever given to the looks of the establishment,—but with all its rough simplicity it had a warm hospitality distinctly its own. How different today! The modern country club, an outgrowth of the old community and golf house, must have all the comforts of a home with the conveniences of a modern hotel. Thus the



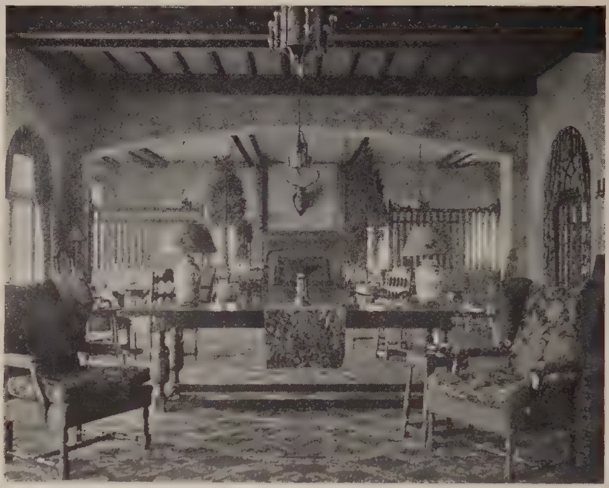
Lounge, Oakland Golf Club, Bayside, N. Y.
Roger H. Bullard, Architect

This room in its architectural treatment reminds one of a golf room of long ago. Its furnishings and curtain treatment are well suited to a room of this type when used as a lounge. A carpet covers the floor, as free rugs could not be used owing to the irregular form of the room and the furniture arrangement.



Grill Room, North Jersey Country Club, Paterson, N. J.
Clifford C. Wendehack, Architect

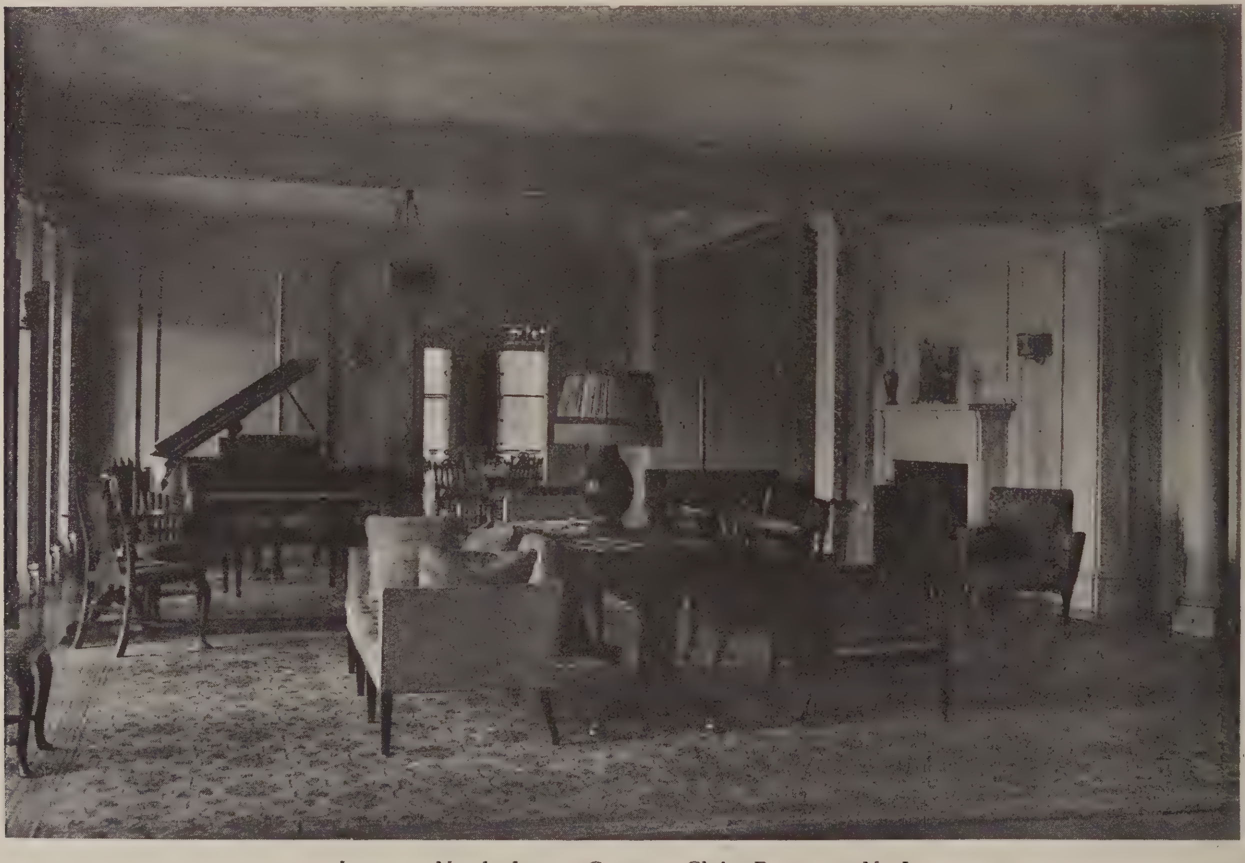
To this room, with old plaster walls, interest is given by the Windsor chairs and special tables, and simple, colorful draw curtains at the casements. These inexpensive furnishings really make a very attractive room, in which there is a marked feeling of rugged simplicity and masculine strength. The rough plaster walls, the massive, exposed ceiling beams, the heavy planked doors, the rough fieldstone and brick chimneypiece, are some of the characteristic features of this grill room. In the design of the electric light fixtures, both wall brackets and chandeliers, we find again the evidence of careful study shown in all of the details. These electric fixtures are of wrought iron in simple but heavy designs, fitted with imitation candles and mottled shades. The plaster in this room has been treated with stain to produce a warm antique effect, which is in pleasing contrast to the dark stained oak doors, trim and furniture. The entire room possesses strength and character.



Lounge, North Shore Country Club, Glen Cove, N. Y.
Tachau & Vought, Architects

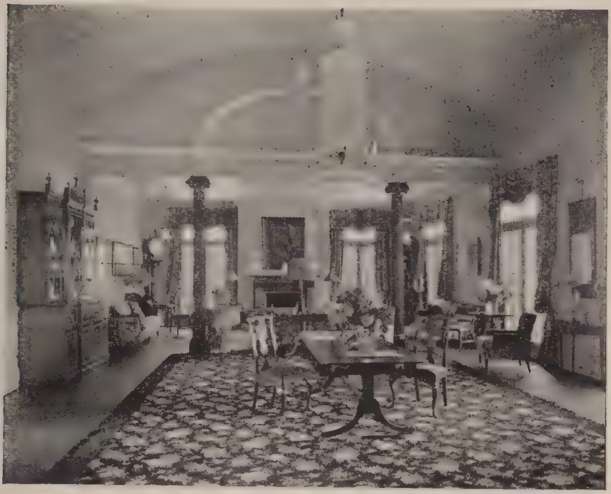
This simple, made-over room has a quiet dignity, not quite as domestic as the home, but still retaining its livable character. The walls are painted deep ivory, with rugs in a special design, woven in camel's hair color and dark blues, contrasting pleasantly with the mahogany furniture and the few painted pieces. Owing to the number of windows, no contrast was desirable, so they are simply curtained in a fabric toning with the walls.

Unfortunately, the illustrations can give no idea of the warmth of color produced by the combination of rugs, upholstery, wall plastering, and stained and painted ceiling beams. The furniture shows a pleasing diversity of style of well made reproductions of Tudor, Queen Anne, and Italian periods. Chinese lamp standards and many interesting ornaments give a homelike and informal touch to the furnishings. Open screens of flat balusters, carried out in stained oak, serve as pleasing marks of division between the living and dining rooms.



Lounge, North Jersey Country Club, Paterson, N. J.
Clifford C. Wendehack, Architect.

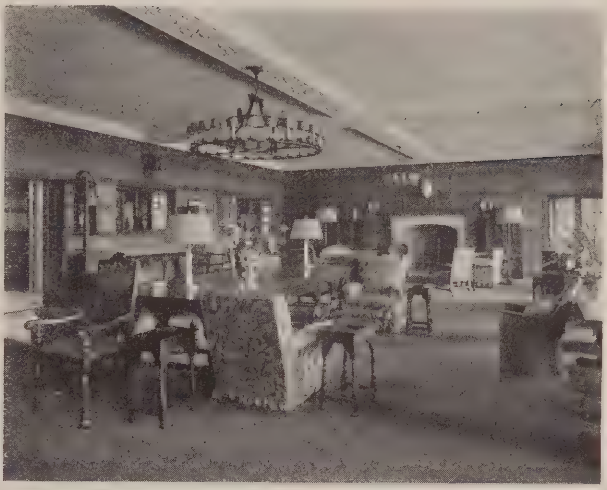
This is a particularly attractive room, simple but well proportioned. The effect is principally obtained by the color and texture of the walls, and the hangings and furniture coverings. The colors are quite bold, the curtains having a design in old blues, reds and golden tones on a dark ground, against the walls, which are of slightly variegated warm and cool tones.



Living Room, Creek Club, Locust Valley, N. Y.
Walker & Gillette, Architects

This charming living room with its domestic Georgian feeling is appropriate for only the more refined type of lounge. The furnishings, of a high order, are well distributed and bear a pleasing relationship to the architecture of the room.

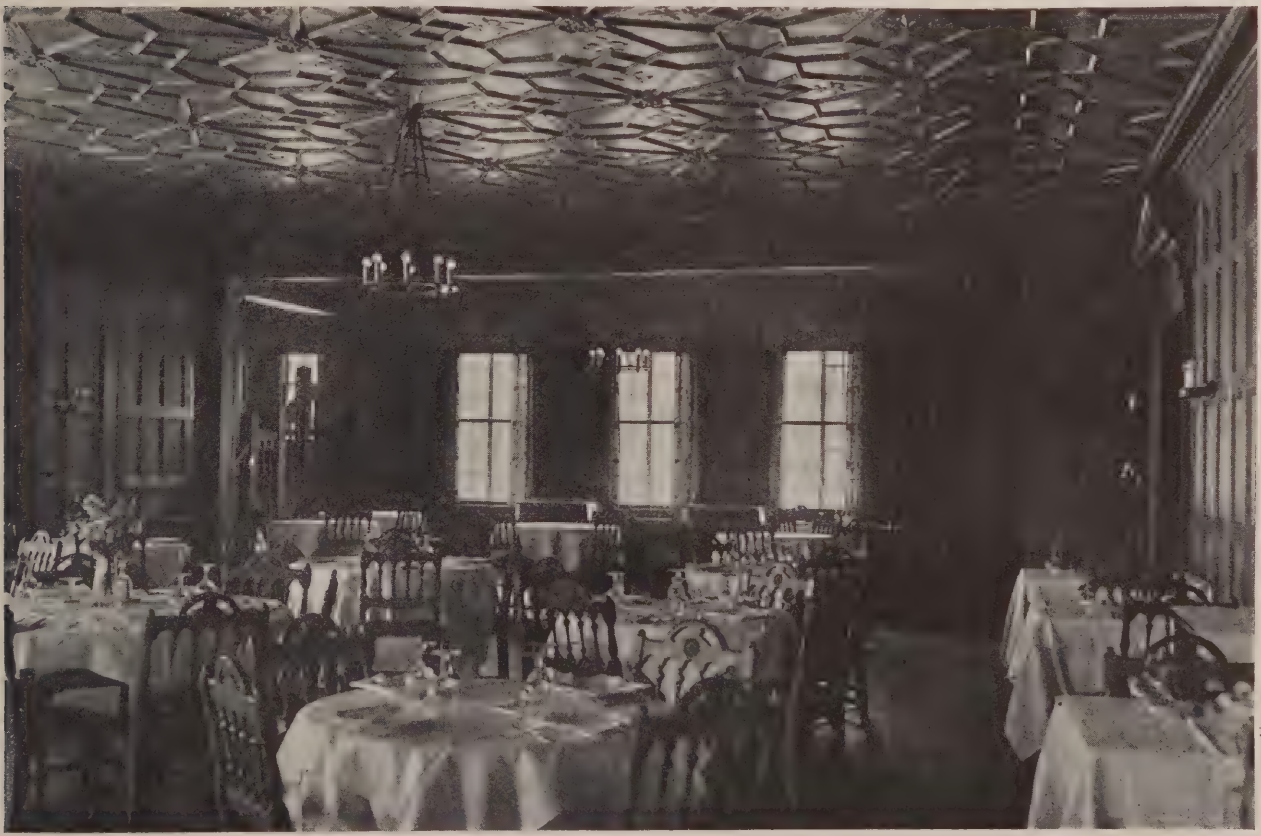
With the exception of the upholstered pieces, all of the furniture is antique, selected with great care to harmonize with the interior architecture. The period of the room suggests an early nineteenth century interior, or what is commonly known as "American Empire." The black and gold marble mantelpiece might well have been found in some old house in Washington Square, so characteristic is it of New York houses built about 1820. An elaborate crystal chandelier hangs from the center of the vaulted ceiling. Heavy glass rosettes act as tie-backs for the draperies, and old astral lamps with glass shades and pendants are interesting details of the furnishings, all of which are appropriate for the room.



Living Room, Grosse Pointe Country Club, Detroit
Albert Kahn, Architect

A simple adaptation of the English Tudor style has been used for the treatment of this attractive living room. Walls paneled in dark oak, and the low plaster ceiling with rich ornament restricted to the beams and cornice, give distinction and individuality. The furnishings, which are well arranged, indicate care and thought in their selection and coloring.

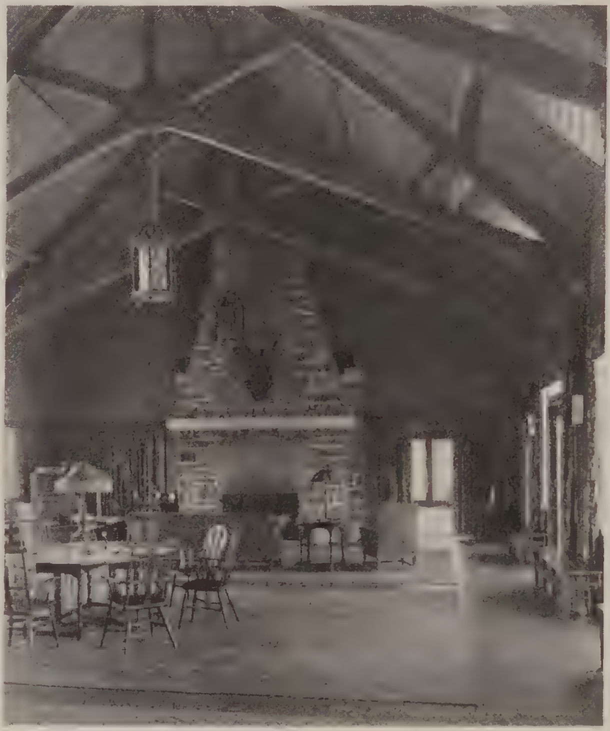
All of the heavier and more important pieces, such as tables, stools, wall cabinets and some of the chairs, are in stained oak, reproducing in style and character the Tudor spirit of the room. A simple stone enframement with low, Tudor arch enframes the fireplace opening. The chandeliers, although modern like all of the furnishings of this room, are English in feeling, showing an arrangement of imitation shaded candlelights, supported on cartwheel frames, which hang from the ceiling at three points. The room has that virile character which renders this style entirely appropriate for club use.



Dining Room, North Shore Country Club, Glen Cove, N. Y.
Tachau & Vought, Architects

This room is in an old out-building made over. The walls are wainscoted in oak, with an ornamental ceiling attached directly to the old ceiling boards. Embroidered lined curtains, with oak furniture finished in a worn-off blue taking up the tone in the embroidery, give the room a most interesting appearance furnishings and decorations have been developed until they are among its most essential features, it having become more and more the meeting place of a community and the center of its social activities.

Those who have studied the subject carefully realize that proper furnishings are vital to the success of the club. Architects and building committees are beginning to realize this as an economic necessity for its welfare and prosperity, and therefore they are giving consideration to this phase of the operations at the earliest possible stage of the development of the general plan of the building. The study in planning the furnishings of a club is not greatly different from that employed in developing the building itself, but in order to take it up satisfactorily a thorough knowledge of its operating methods should be acquired. It involves not only a wise selection of the various items required, but in addition a careful consideration of the relationships of the rooms to one another, and of that between the decorative elements of each room, their floor coverings, furniture, hangings and other furnishings. Effect is produced by discretion and thought in their selection, by proper relations and contrasts in the furnishings to the room, and their general disposition. Decorations include all this. The test of good decoration is in the final result.



Living Room, Sunningdale Country Club, Scarsdale, N. Y.
Robert D. Kohn, Architect

This English room denotes a well studied and interesting type of lounge. Its wood wainscot, ceiling and trusses are given a weathered appearance, while the plaster is in a slightly lighter and warmer tone, well in harmony with the room. The furnishings are characteristic and are broken into three groups accentuated by the rugs. Low radiators with benches built over them make an interesting feature.

In developing the furnishings and decorative treatment of the club house, I think it is a wise and economic necessity to employ, if possible, someone who has made a special study of this branch of interior decoration, and who is familiar with work of this character that has been and is being done. He should be conversant with the merchandise that is procurable for the particular type of building he is employed on, and should be able to use this knowledge to the greatest advantage in collaboration with the architects, and to the best interests of his clients.

The areas of the various rooms, their interrelationship, color, character, design and illumination are to a great extent determined by what are to be their ultimate furnishings. These factors can all be coördinated, and often considerable saving may be made if the decorations and furnishings are given some thought when the building is being designed. We often find that the proper drapery treatment may eliminate useless door and window trim, the placing of floor or table lamps unnecessary wall or ceiling lights, that the placing of a rug or carpet permits simpler flooring, and that a general study of the color scheme may eliminate to advantage costly architectural features. It has been my experience that a studied scheme of decorations in relation to the furnishings and general architectural treatment of the rooms not only tends to simplifying, but also (what is nearest the heart of the clients!) to reducing the cost of the work of decoration.

I shall not go into a description of the furnishings to be used or into the general color schemes for the various rooms of the club house, for such dissertation I consider useless, since it all depends, as we know, on the interrelationship of the rooms, their style, the character of the club house, and above all the funds that are available for this purpose. I have a few "pet ideas," however, that I would like to set forth, and which it may not be amiss to emphasize in these pages.

We all know that the tendency of the modern country club is towards possessing a livable atmosphere, which is, of course, most excellent if it is not too domestic in feeling. After all, we have a cosmopolitan taste to satisfy, and I somehow feel that we should maintain at least a touch of the old time ruggedness of the golf house. By this I mean that the furnishings should be bolder and the general key of color higher than would be used in the home. The durability of furniture, furniture coverings, hangings and floor coverings for the club are of prime importance to the individuals who have this work in charge, and they must remember that quality has a fixed cost and cannot be bargained for. The furnishings should be of a standard that will withstand the test of time.

To sum up in conclusion, I believe in consistency in the standard of furnishings throughout the club house, determined by the general appropriation to be expended, whether it be large or small. Do not mix the ordinary with the good, but you can mix whatever things are good, no matter how simple.

Landscaping a Golf Course

By DEVEREUX EMMET, *Golf Architect, New York*

IT all depends on the golf course. If it is a seaside waste of sand dunes and strips of beach and valleys of rabbit-eaten, mossy sea grass, then any planting or interference with nature as she is would be entirely out of place. Such a golf course is that of Lido, or some of the seaside British courses, and in a measure such is the National Links which is situated on a moor near the sea. After you have placed your club house and your parking space and your entrance drive and some low evergreens around your club house, such as pines, junipers and hardy Japan yews, and some vines on the walls like hardy roses and *euonymous radicans,* your landscape architecture comes to an end, and all else is golf architecture. I am a golf architect first, and after that a landscape architect. The golf course gets the first consideration, and everything else must be subservient to it, but there is an unlimited field for landscaping on every inland golf course,—on practically every golf course except the rare exceptions just described.

The most important and the most difficult thing to produce at a country club is a really good golf course. In the majority of cases the natural aids of contours, water hazards, gullies, etc., are only too few and far between. One must seize every advantage. A tennis court can be put in almost any place provided it be handy to the club house and runs north and south and does not obstruct the view. The entrance drive, the position of the club house and the provision of space for parking cars are matters of immediate concern and must be successfully settled before anything else is even thought about. Upon them depends much of the club's success.

It is, of course, highly desirable to have the ninth and 18th greens at the club house, and to select a site which overlooks as many holes as possible and one which commands a beautiful and inspiring outlook. I like to have a club house built facing south, on a hill but not exactly on top of it. If possible, I like to have it below the summit on the south side, with just enough rise back of it to throw the bitter north wind high up over the house. There are many bleak days in the spring and fall when golf is in active progress, and then many country clubs are used in winter for winter sports. The finest location for a club house I ever saw is one which was selected on a course I have lately laid out at Wheeling, W. Va. This is placed just as I have described, and overlooks a vast amphitheater of golf holes. The surrounding scenery and the terrain itself at this fine course are very beautiful and picturesque.

Eighteenth Green, The Country Club, Brookline

I am devoted to the art of landscaping with trees. I have experimented on my own place on Long Island for nearly 40 years, doing nothing to achieve immediate effect with a sacrifice to permanent and ultimate beauty and everything for a long way ahead. Unless you are a Crœsus and can move large trees at great expense, this is what you must do. I am satisfied that a great many of the glorious places in England and Ireland were started in the eighteenth century with a lot of small trees planted with a master hand and an eye looking ahead 150 years. There was a perfect craze for it in the days when the great Lord Chatham was young, and we are told that he was a devotee of the art and laid out many places. Sometimes nature unassisted does a wonderful and glorious work all by herself.

This has happened on the Palmetto golf course at Aiken, S. C. I remember when it was laid out, on rather hilly, abandoned cotton fields, with a few large, gaunt pines standing around,—not very attractive. And in 25 years a veritable miracle has been worked. Thousands of young, long-leaved pines have seeded along the edges of the fairways and around the greens and tees; fire was kept out, and these seedlings are now from 40 to 60 feet high, forming a classic background and frame to the open spaces and making the outlook from certain tees and greens indescribably beautiful and romantic. Half the pleasure of playing at Aiken is derived from the contemplation of this marvelous and refreshing greenery, which is just as effective in winter as it is in summer,—more so, in my opinion. If art had been used and hollies had been planted and *deodars* and *cedrus Atlantica* and cedars of Lebanon and *Macrocarpa* and other evergreens, the effect would be even more beautiful. Practically every Japanese and Pacific coast evergreen will grow in Aiken. Some kinds of courses call for a certain planting, others for a totally different kind. The sandy, rolling tract on which the McGregor Links at Saratoga is built, seems to naturally grow white pines and white birch,—a combination hard to beat. Already this course is beautiful in its surroundings. In 20 years it will be indescribably so. Some courses with lush, low-lying meadow lands and alluvial river bottoms like that at Stockbridge, Mass., call loudly for basket and laurel leaved willows and large elms.

Whatever you plant, you must ultimately provide for the removal of the lower branches if the trees are near the zone of play. Shrubbery and branches on the ground are incompatible with the game of golf. A man must be able to crawl under and spoon out his ball somehow. It is forbidden to bend or break any growing thing except in the actual stroke, although I constantly see golfers playing strokes with caddies bending several branches out of the way. Prickly gorse bushes or whins are frequently found around English courses, but I have always regarded them as abominable hazards. Even the classic course at St. Andrew's used to be surrounded with whins, but they have long since disappeared before the niblicks of two generations of long suffering, vigorous, and determined golfers.

Fairway on the Golf Course of the Long Island Estate of Otto H. Kahn

Many people resent the presence of trees around a golf course. They introduce an element of luck without doubt, but I am for them on inland courses because of their beauty and because I think a little luck is a good thing in a game.

In planting trees around a country club these objectives must be kept in mind:

1. Windbreaks and dark backgrounds for tennis courts.
2. Shade around club house, around tees and along roads and drives.
3. Backgrounds for greens.
4. Divisions or barriers between parallel holes.
5. Windbreaks along sides of fairways.
6. To provide privacy and to hide disagreeable and ugly surroundings.

For nearly all these purposes evergreens are superior to deciduous trees; but we must not forget the flowering trees,—dogwoods (white and pink in adjoining groups), magnolias, judas trees, double blossomed cherries, and apples. Neither must we forget white birches and Virginia junipers.

As far as I am concerned, all this is theory with me. I know I am right, but I have never yet had a chance to properly plant a golf course. One of my courses was planted by a landscape architect and he certainly made a mess of it. You must keep thinking of the golf. It is like Sir Walter Simpson's advice in his chapter on "Parlor Golf." In taking your stance "you must do it not without reference to the chandelier." In every other instance the money was scarce and no planting was done, and I had to turn my attention to other work, and the question of planting was not of sufficient importance in the eyes of my employers to warrant them in employing me on a new, laborious and slow project. Planting a golf course and country club is a long undertaking and calls for a lot of study and measuring and hard work. If people would plant small nursery stock immediately, without waiting several years, and then give the thing time, they could keep down the expense and achieve wonderful results in the end. Trees planted when small grow faster from the beginning. When there are trees already growing on the tract the problem is just as interesting. Wonders can be accomplished by exercising good taste and hard study of the problem. But your love of trees must not be allowed to lead you too far and spoil a golf course for the purpose of saving a tree or two. One of the chief objectives is to create charming vistas in different directions. I am at present laying out an 18-hole course at "Rockwood Hall," the beautiful estate of the late William Rockefeller at Tarrytown. We have done a lot of cutting, creating many noble vistas suggestive of Fontåinebleau and the great estates in England. Mr. Rockefeller was a keen votary of the landscape art and devoted years of study to his planting, and yet I believe if he could come back to "Rockwood Hall" and see it now, he would approve of the cutting. The place has taken on an added nobility and highly distinguished dignity.

The question of locating an entrance road and other drives through the property is very impor-

Seventeenth Green, Nassau Golf Course

tant. These drives must not cross the line of holes. It is a delightful thing to have some drives about the course so that people can drive around and watch the play. This works splendidly at the Mohawk Golf Club at Schenectady. Such roads can be allowed to grow grass on the surface. They are ordinarily used only in summer. Footpaths and walks should be arranged for where possible. Then a swimming pool should be provided for with proper planting. You observe I am spending money like water. I don't expect ever to see it done on a golf course, but it is nice to talk about it. About the time when the grass begins to thicken on the ground, the greens committee begins to function, and the members begin to get impatient and want to know when they can play. This demand gradually becomes so insistent that the United States Army could not keep them off the course. Then good-bye to trees and landscaping. What ought to be done is this: An arrangement should be made with some competent tree planter to carry out a planting scheme made by the golf architect or, in case he is not an expert on landscaping, then with a landscape artist in consultation with the golf architect.

When the trees are planted they can be looked after by the regular upkeep force under the greens committee. In most cases a great many evergreens can be used to advantage, and so I advise using small evergreens which can be bought, planted and cared for easily and cheaply. It takes time for them to grow. White pines in irregular groups and in the mass are the most valuable trees in landscaping courses. Hemlocks are very beautiful around a course, but they must be protected from the cold winds. On sandy courses there is no more valuable tree than the Austrian pine, which gets finer and finer as it grows older. These trees can be seen in their perfection on the Shinnecock Hills. Spruces and balsams and concolors are fine, but they must not be too near the course because of the lower branches. These trees are beautiful on the Lake Placid course, which is an example of what nature can do unassisted.

A whole chapter might be written on the planting of courses in the tropics. I have just completed a course at the Bahamas Country Club, recently made by the Munson Steamship Line at Nassau, Bahamas. There the main piece de resistance is the cocoanut palm. You can get an idea of how lovely this kind of backing for a green can be from the illustration of the 17th green at Nassau on page 155.

A good illustration of the value of a fine golf course from a scenic point of view is found on Otto H. Kahn's estate on Long Island. The 18-hole golf course surrounds the house on every side. The effect is inspiring and satisfying to the eye and furnishes a perfect way of entertaining guests and keeping them happy,—simply turning them out to grass, as it were. The growth of country clubs in America has been extraordinary, and yet we feel that the movement is yet in its infancy. Anything that throws light on any phase of the subject is important,—anything that cuts the cost or adds to the pleasure of the future toiling millions of golfers must be well considered and listened to with respect. The beauties of nature are bound to be seriously impaired by man's efforts to live; let us see to it that we add to those beauties where we can do so by taking thought and looking ahead. "Life is short and art is long" is as true today as ever it was.

Number 2 Green on the Golf Course at Cooperstown, N. Y.

Swimming Pools for Country Clubs

By CHARLES DOWNING LAY, *Landscape Architect, New York*

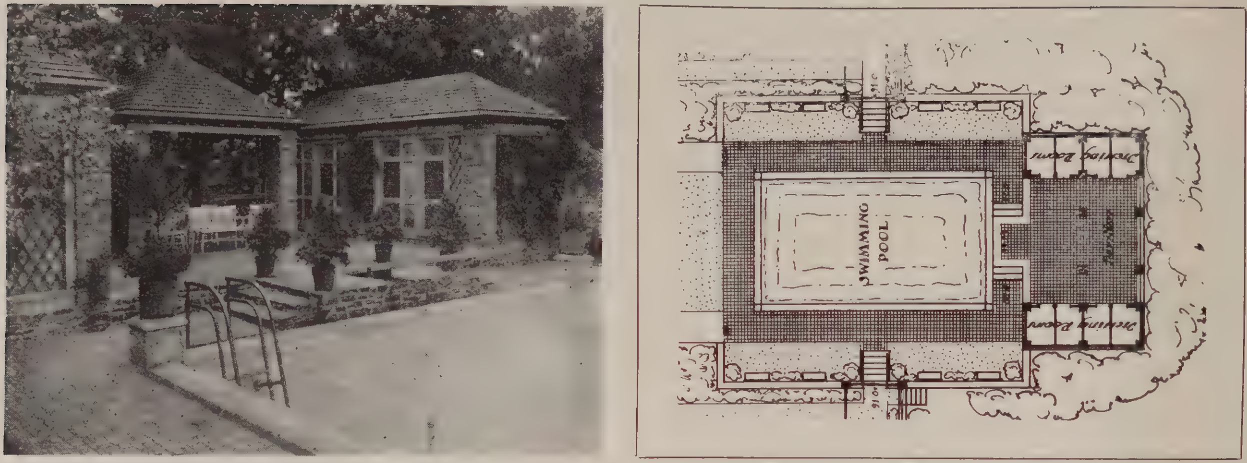
EVERY argument for installing a swimming pool on a private place has greater weight when used to urge a pool for a country club, with the added inducement that swimming is a social pleasure, increased by companionship. The swimming pool must not be considered as a simple detail of engineering, to be placed in any convenient spot. It must have attractive surroundings, being part of the garden perhaps, or having its own enclosure free from the observation of those who are not swimming. It must have shade and sun, green grass, smooth and clean walks for bare feet, and many places to sit before and after the swim. It should be far from the sound of motors, not overlooked by any of the buildings, and away from the service part of the place. To have a pool indoors seems of little advantage for a country club, unless it be one that is used more in winter than in summer. An indoor pool is never so pleasant as one out of doors, nor is it always quite as attractive.

Pure, clear, soft water is desirable, but these qualities may be dispensed with if the supply is sufficient and sure to remain so throughout the season. It will seldom be necessary to empty the pool and refill it, but every day the loss of water due to the displacement and splashing of bathers must be made good, to the extent of a foot or so. Water let in to fill the pool again can be filtered on the way in, and it is likely, too, that the filter will be run continuously to keep the water clear during days of little use. Water from artesian wells and springs seems to carry spores of *algæ,* which grow with great rapidity when brought to the light, making the water cloudy, and green or milky in color. The filtering equipment should be adjusted to keep the water crystal clear, to accomplish which the water should be analyzed. The filter must be bought to suit the quality of the water to be purified. Pools used by great numbers of people will probably need violet ray purification, but this is a matter for a bacteriologist to decide. A constant, small stream of water playing into the pool is delightful in itself, and serves to keep the water always up to level in spite of little waves and evaporation. An outdoor pool, warmed by the sun, seldom needs any heating apparatus. It is more likely to need cooling, which is usually best accomplished by pumping in fresh water. This should be quite cool if it comes from wells or springs.

It is better to have a pool a little too small than too large. It is astonishing how small a pool will satisfy our individual desires for diving and swimming. Fifteen by 25 feet would be delightful for a small family pool, but for larger places and larger parties 25 by 50 is a good size. Sizes beyond that must be calculated according to the space which can be used, the cost, the water required, and the expected patronage. Since people stay in the pool for only a small part of the time that they may take for a swim, a great number can be accommodated in a small pool, provided, of course, that they do not all want to go in at the same instant. Every foot added to length or breadth increases the cost of the pool itself, the amount of water required to fill it, and the extent of the walks and other features around it. Eight feet is a sufficient depth for any pool, unless it is to be used for exhibitions, which is frequently the case in clubs. A depth of from 9½ to 10 feet is then recommended. The greatest depth need only be at the end of the pool where the spring board is located. To reduce the depth is a tremendous saving in the cost of construction and in the amount of water used. If the bottom is slightly sloping, and if diving can be restricted to the deeper part, the rest of the pool can be quite shallow as in many instances it is. It would be only the clumsy swimmer who would be in any danger of striking the bottom, even when diving at the shallow end.

Local conditions must determine whether the pool is to be built of stone, of concrete or of brick. Although waterproofing is frequently dispensed with in outdoor pools built into the ground, it is a practice not to be recommended. In most cases there should be a watertight skin of felt and tar embedded somewhere in the masonry. The felt and asphalt course should not be outside the wall. It is usually best to have it built into the masonry or concrete walls, and covered by a brick course which holds the inside surface of smooth cement plaster or tile. This inner skin of brick and cement must, if it is over 3 or 4 feet in height, be tied through the waterproofing course to the masonry behind. The waterproofing is elastic enough to allow cracking of the masonry without resultant leaking. In designing the walls, it must be remembered that they are retaining walls when the pool is empty, and may have water pressure in the ground back of them besides. When the pool is full they have little work to do, so they must be designed to stand pressure from without, which will sometimes constitute the chief function of these walls.

Water which splashes out or is displaced by bathers or which overflows must be taken care of all around the pool by what is known as a scum gutter. This keeps the surface of the water clear of dust, dirt and scum and prevents the dark water line which comes on the tile whenever the outlets are pipes located at intervals around the pool. There is a difference of opinion as to the best type of overflow trough or scum gutter. In outdoor pools, some prefer the gutter to be located outside and a little below the coping around the pool, which per-



Pool, Loggia and Dressing Rooms, Estate of Alexander Van Rensselaer, Esq., Camp Hill, Fort Washington, Pa.
Charles Downing Lay, Landscape Architect

mits the surface of the water to stand at a level with the coping itself, instead of 1½ feet below the coping, as is the case when the more generally accepted inside scum gutter is used to surround the pool.

Although the appearance of pools where outside scum gutters are used may be more attractive on account of water being constantly flush with the top of the coping around the pool, it is generally conceded that the inside overflow trough or scum gutter is more sanitary. The inside scum gutter serves four important purposes: First, it automatically removes from the surface of the water all extraneous substances, such as dust, lint, scum, etc. Second, it acts as an overflow, regulating the depth of the water and keeping it uniform. Third, it serves the important function of a cuspidor, which is constantly flushed by the lapping and splashing of the water, and to a great extent prevents expectoration in or about the pool. Fourth, and finally, the front or "dam" portion of the gutter forms a support or life rail, that in all respects is far superior to metal or rope handrails. If the inside type of scum gutter is used, it is advisable to provide an outside gutter between the coping of the pool and the walk surrounding it. This walk must be smooth for bare feet, and easy to clean, and should add to rather than detract from the attractive appearance of the pool. Tile, as at the Van Rensselaer pool, or slate as at many other pools, has proved satisfactory and attractive, and their use is recommended.

For a private pool it is best to have small dressing rooms with dressing tables, mirrors, chairs, electric lights, clothes hangers and plenty of hooks. Six or eight such rooms will accommodate a considerable party. For a club or public pool, separate dressing booths must be provided for men and women. An arrangement of dressing booths with lockers outside along the aisles where clothes may be put, will be the most useful. A dressing booth which is hung with clothes while the owner is bathing is an extravagance, although it is customary at our beaches. A country club may not have to provide any such arrangements, since the locker rooms which are now used for dressing can be used as well to change to bathing suits. It may be wise to give an indoor pool the appearance of a bath tub by lining it with dead white, but this seems hardly necessary outdoors, where the light is so strong that any color is visible through the clear water. When the level drops through splashing, it is pleasant to see colored tile showing below the coping, and interesting to see it through the water when one looks straight down. Marble or any smooth stone would make an agreeable lining, though not so good as, and more perishable than, colored tile. White cement will serve, but a combination of cement panels and tile borders is better and not much more costly. Using tile in patterns or as distance bands in the cement reduces the cost, and is almost as good as using tile throughout.

The consensus of opinion seems to oppose leaving the pool full of water in winter in northern climates where the water is likely to freeze. A tile-lined pool in the north should be emptied to obviate the cracking of tile around the sides of the pool where the ice would be likely to press against it.

The filter with its motor and pump, and the pump for the water supply can be located in a small house near by. The nearer it is the less the piping will cost, and the easier the care of the pool will be. One man should be able to look after all the water supply of the place, watch the filter and keep the pool enclosure swept and cleaned and in good order. Shower baths should be provided for use before going into the pool, and toilets are necessary.

There is no feature of a country place or of a country club so delightful in summer as a swimming pool. It often makes endurable a summer spent far from good swimming water. For the man who has worked long hours in mill or office, it is a revivifying experience to plunge into the cool depths of the pool, leaving there, when he emerges, the worry and the rush as well as some of the cinders of the day's work. In fact a pool is generally worth all it costs.

Planning the Golf Course

By A. W. TILLINGHAST, *Golf Architect, New York*

BEFORE the golf course architect can lay out a single hole he must know to a certainty the exact site of the club house. This is his dominant, the Alpha and Omega in any event, since wherever possible the course not only starts and finishes close by the club house, but swings back with the ninth hole and away again with the tenth. The advantages of this arrangement are obvious. Often enough a player desires to cover only nine holes, and if the finish of these were not in the vicinity of the club house he would be forced to end his abbreviated round at a remote corner, or to "cut in" to avoid a monotonous trudge. The two swings of nine holes make it possible to get the players away over both, on days when the attendance is unusually heavy, and thus relieve congestion in a measure; and it must be remembered that there are many who like to lounge around the grounds and watch the play; bring more play under their observation, and the better the spectators are pleased.

Probably it has not occurred to some that it is desirable to turn in the direction of home with the second hole. True, the advantage of this might only be apparent on tournament occasions, when matches go to extra holes, and even if three had to be played, the contestants would find themselves not very far from the club house at the conclusion.

The arrangements which the preceding paragraphs outline are greatly to be desired, but certainly it is the height of folly to force the plan of the holes to attain them, if the scheme detracts from the merits of the course. Many of the most famous links in the world keep right on running away from the club house, which is seen no more until the last putt has been holed. There is another arrangement, a 27-hole scheme, which makes it very necessary to place the club house at the dead center of three swings of nine holes each. This permits various combinations of holes, which add much to the variety of play. For example, during one week swings A and B would combine for the main course, leaving C open for overflow; the following week A and C combine, leaving B open; and the next combination of B and C leaves A for the shorter round. It is plainly evident that this arrangement permits of only one selection for the club house site.

In recent years some of the large organizations have found it necessary to construct 36 holes. A number of such courses were given to me for planning and development. Each necessitated a different arrangement. For example at Baltusrol there stood the magnificent club house at the fag end of the property, and consequently both the upper and lower courses have the "turn" at distant points. But close by both ninth greens there stands a building which serves as a halfway house, with telephones and similar conveniences. The two new courses of the Baltimore Country Club find one course with two swings and the other running straight away from start to finish. Here again there was no choice of a site for the club house, for a fine mansion almost on the south boundary of the property could not be ignored.

However, when the two courses of the "Winged Foot," at Mamaroneck, were planned, the holes were laid out only after the selection of the club house site had been given careful study. Here both the east and west courses offer two swings each, to and from the house, and there also is ample room for a large driving practice area and an unusually generous practice putting course. The views over the Winged Foot courses from the club house are inspiring, and there is every opportunity for spectators on the lawns and verandas to look over play in every direction. Here is a model, and the new building in the Tudor type harmonizes beautifully and restfully with the surroundings. But it is not concerning the plans of the club house that I have been asked to write briefly; it is of the selection of sites strictly from the viewpoint of the golf architect.

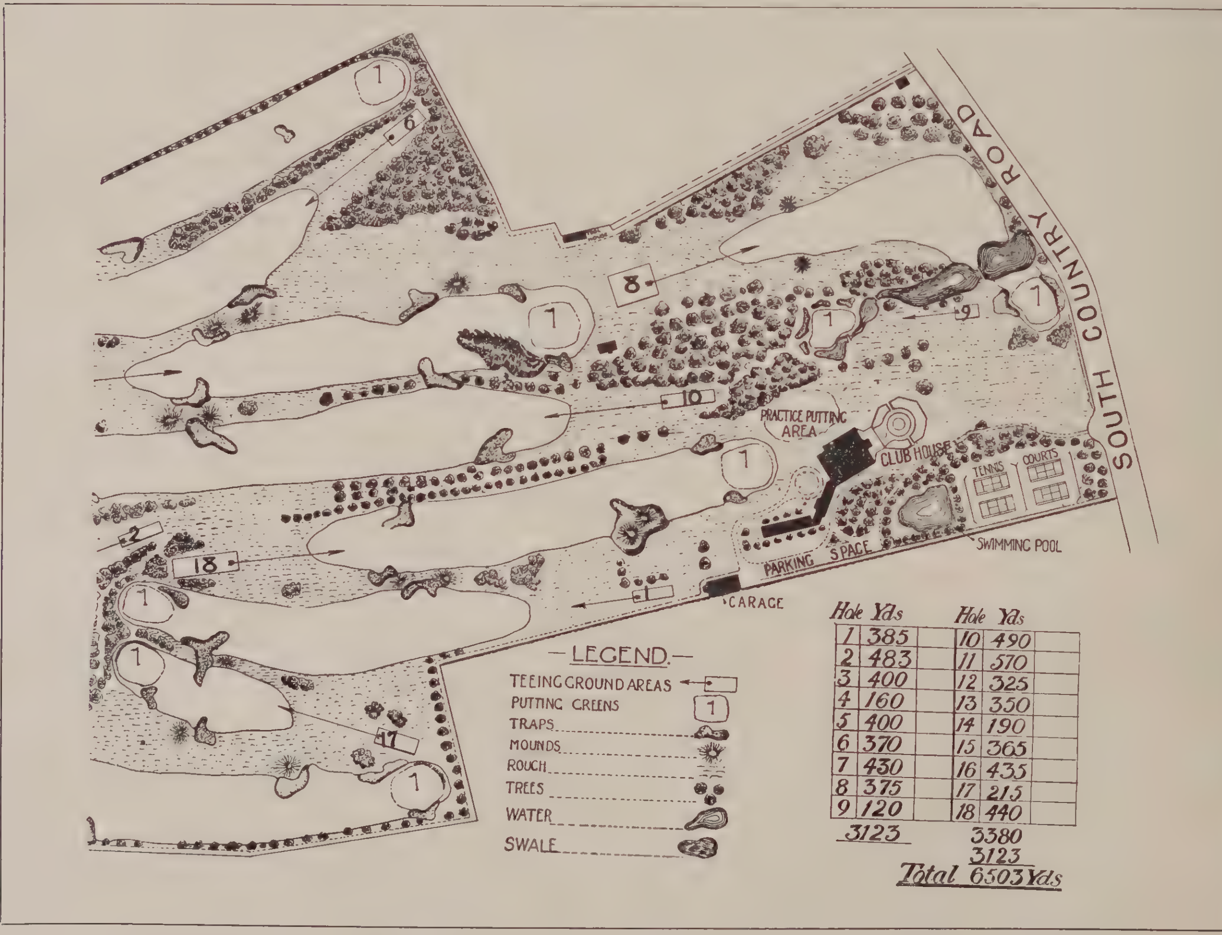
Generally, I believe that the presence of an old house or a mansion proves a distinct handicap. Often this sways the committee in the purchase of property. After all, it may be located unfortunately, so far as the demands of golf are concerned, and with few exceptions these residences, after they are remodeled, are not nearly so adequate as entirely new buildings, planned and located solely to provide comfort for the golfer of today.

In nine instances out of ten the committee already has a preconceived idea of the proper building site, and in as many cases that site is on a hilltop at the very greatest elevation on the tract. It is not the intent to question the wisdom of this choice except as it relates to the golf course itself. When club houses are built on unusual elevations it makes it difficult to construct true holes to and from them. Either there is the tendency to get away with a hole, which rather suggests driving off the roof, or the last hole presents blindness; and only too frequently there is also involved that great abomination,—an arduous trudge uphill, which brings the players home blowing like porpoises in a state of exhaustion. Personally, I incline to sites at lower levels. I recall discussing this point with two of the leading landscape architects in America,—A. D. Taylor of Cleveland and Charles W. Leavitt of New York, who both agreed with me. Mr. Leavitt was developing a tract of some 400 acres for the Philadelphia Cricket Club. It was my work to plan 36 holes there, but before any plans could be attempted it was vital that the club house site be fixed. The committee strongly considered a hilltop, but Mr.

Leavitt urged a much lower level. It was his idea to build the entrance roads along the higher levels, so that really the first view of the club house might be had by looking down into a small, sheltered valley, very much after the old English manner. He finally demonstrated that there was more breeze down there than on the hilltop. To be sure, the scenic beauty of any site must be considered to some extent, but golf values are of even greater importance.

The presence of fine trees, brooks and lakes, or the advantages of a particularly inspiring panoramic view, are to be greatly desired, but if they do not happen to be found around the site which lends itself best to the golf course, turn steadfastly away, even though it be to what seems at first a less attractive area; for a little imagination may enable one to visualize a future development, when many features have been added with the assistance of a master of landscaping. When the course of the Somerset Hills Country Club was built at Bernardsville, N. J., where there were many exceedingly inviting sites for the club house, the house was finally built where it served the best interests of the course, and it is regarded today as one of the most charming in America. The architect of the house made a great feature of a fine old apple tree at the center of a courtyard. It is probable that few people had ever noticed that apple tree before.

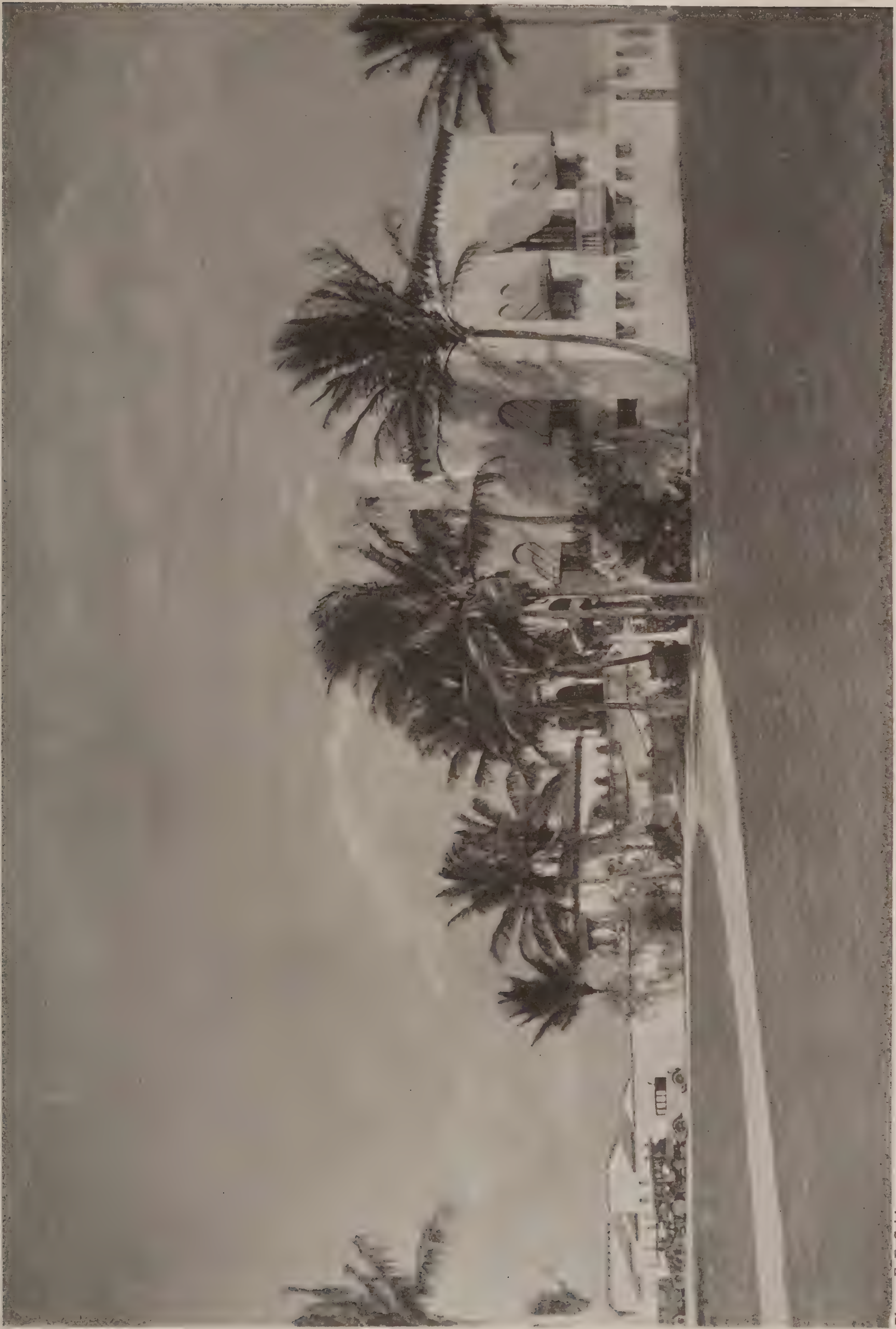
When a site is selected, of course due consideration must be paid to the locating of driveways, motor parking spaces, putting lawns, and all that goes to make the country club attractive to players and spectators alike. The holes of the golf course must not encroach too closely on the house and grounds, for when men, and women too, go to the country for relaxation they want to have breathing space, so to speak. The architect of the golf course should confer with the architect of the house and with the architect of the landscaping. "Every shoemaker to his own last," as this is a day of specialists. By working together in harmony, each at his own craft, the hit-or-miss methods of country club building should be relegated to the past even more effectively than they are at present. Many indeed are the golf and country clubs, where, owing to such coöperation, grounds and buildings have been planned and constructed in ways which satisfy the eye as to architectural harmony and afford every detail of physical comfort, thus adding to the pleasure of golfing.



Hole	Yds	Hole	Yds
1	385	10	490
2	483	11	570
3	400	12	325
4	160	13	350
5	400	14	190
6	370	15	365
7	430	16	435
8	375	17	215
9	120	18	440
	3123		3380
			3123

Total 6503 Yds

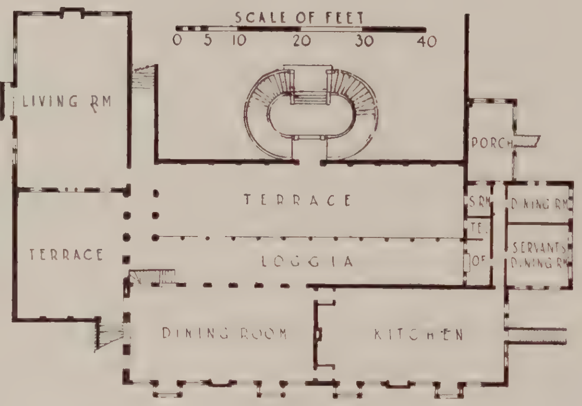
Portion of Golf Course Plan Showing Two Swings of Nine Holes from Club House Site
Southward Ho Country Club, Long Island
A. W. Tillinghast, Golf Architect



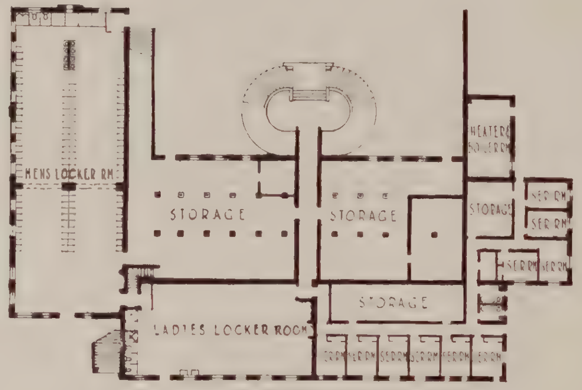
Plans on Back

Photos. F. E. Geisler

GULF STREAM GOLF CLUB, PALM BEACH, FLA.
ADDISON MIZNER, ARCHITECT



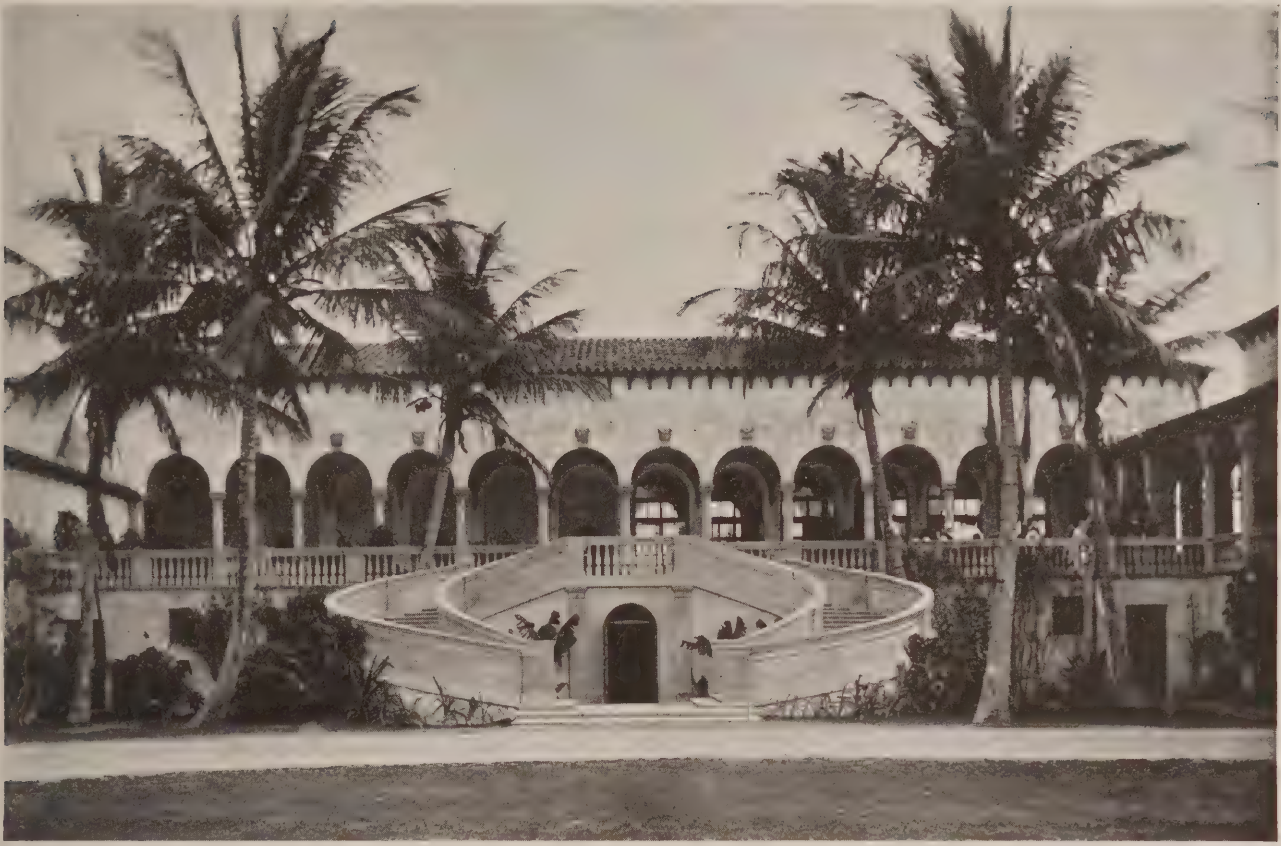
MAIN FLOOR



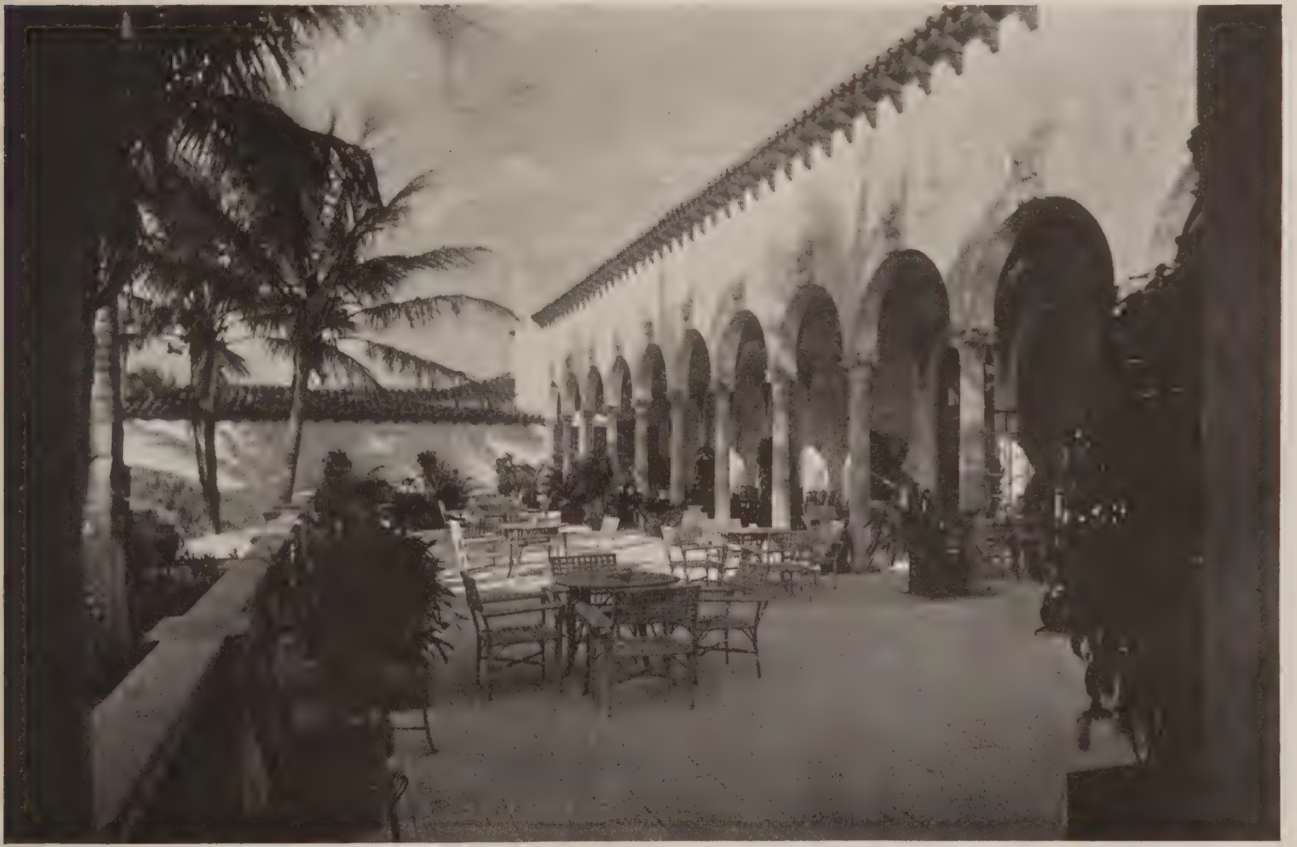
BASEMENT FLOOR

GULF STREAM GOLF CLUB, PALM BEACH, FLA.

ADDISON MIZNER, ARCHITECT



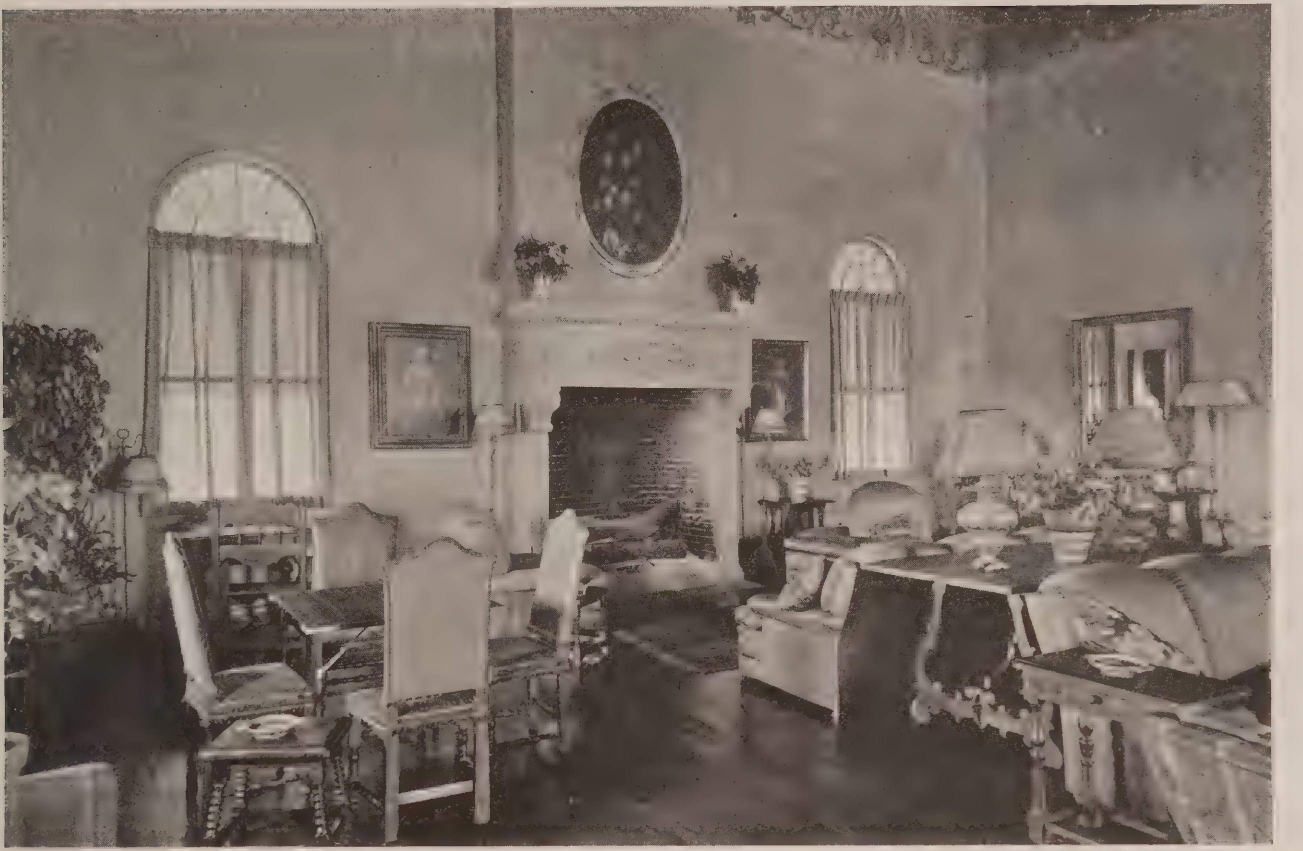
FRONT ELEVATION



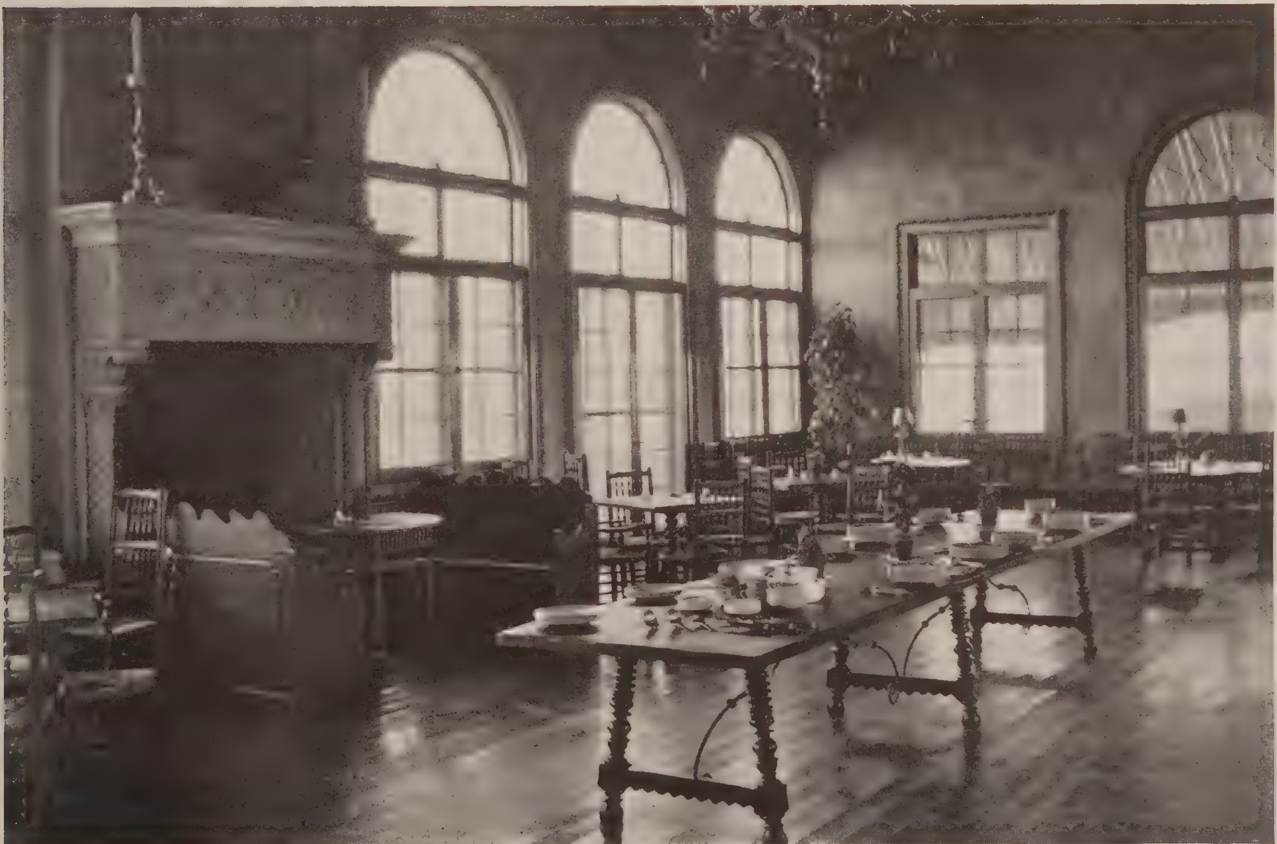
TERRACE AND ARCADE

GULF STREAM GOLF CLUB, PALM BEACH, FLA.

ADDISON MIZNER, ARCHITECT



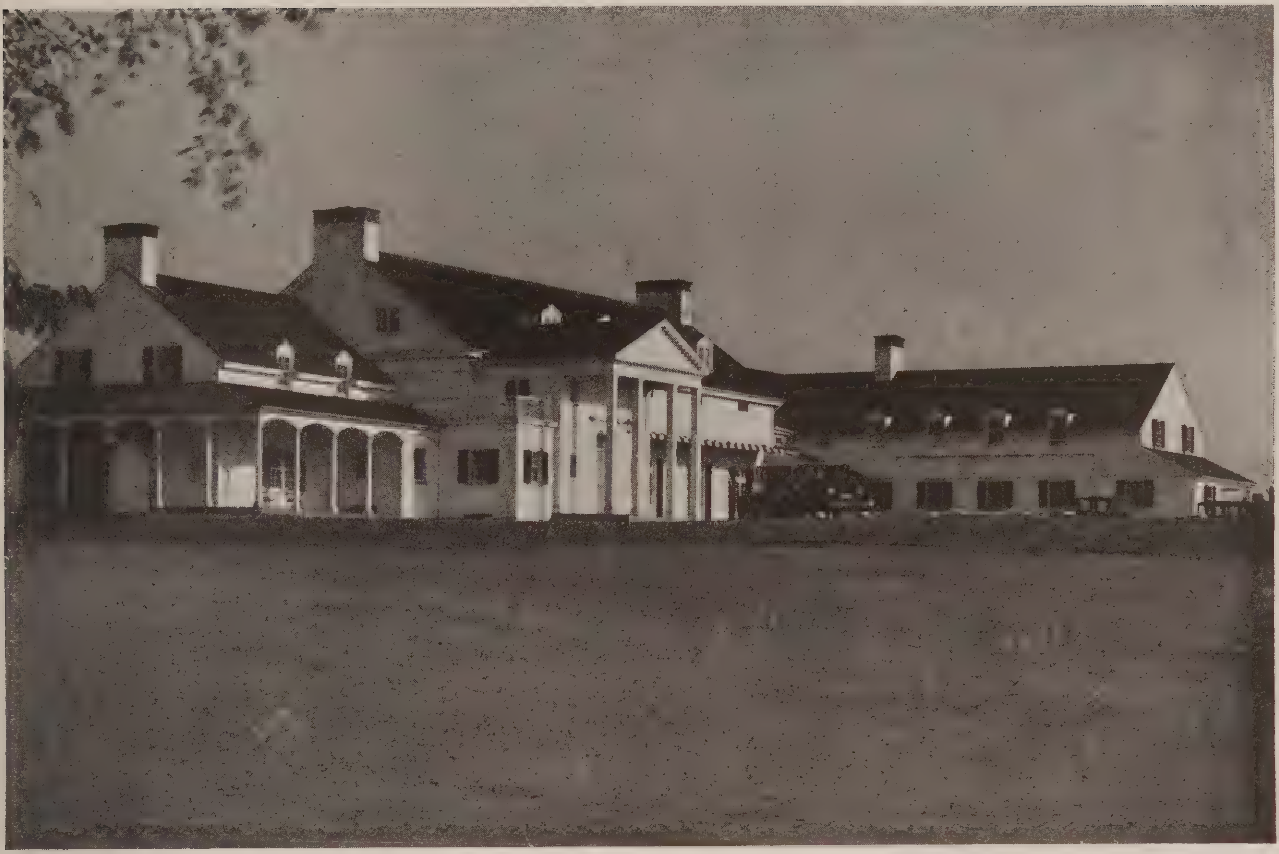
LIVING ROOM



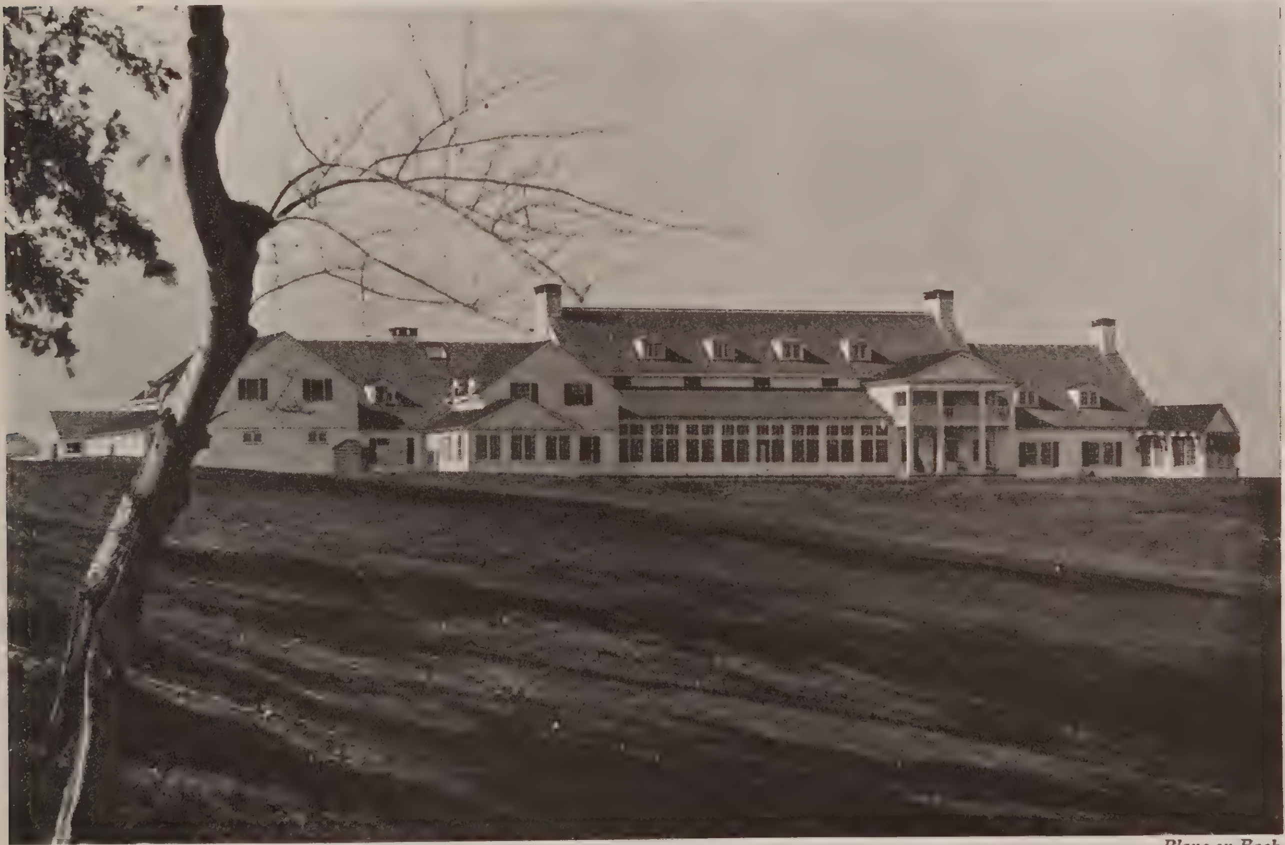
DINING ROOM

GULF STREAM GOLF CLUB, PALM BEACH, FLA.

ADDISON MIZNER, ARCHITECT



ENTRANCE FRONT



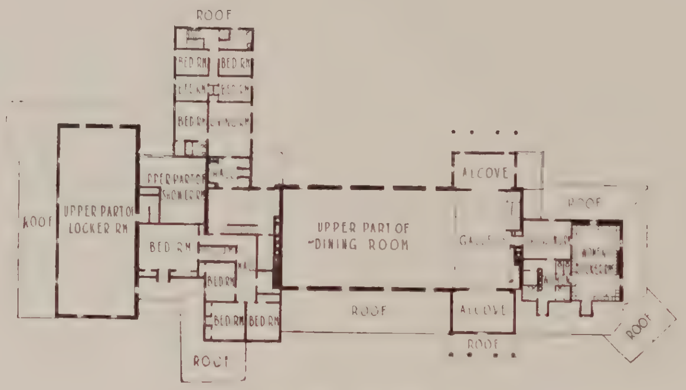
Photos. George H. Van Anda

Plans on Back

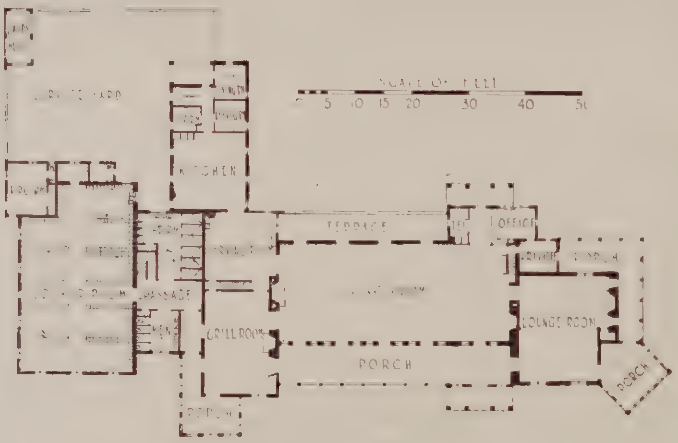
ELEVATION OVERLOOKING GOLF COURSE

PLAINFIELD COUNTRY CLUB, PLAINFIELD, N. J.

ROGER H. BULLARD, ARCHITECT



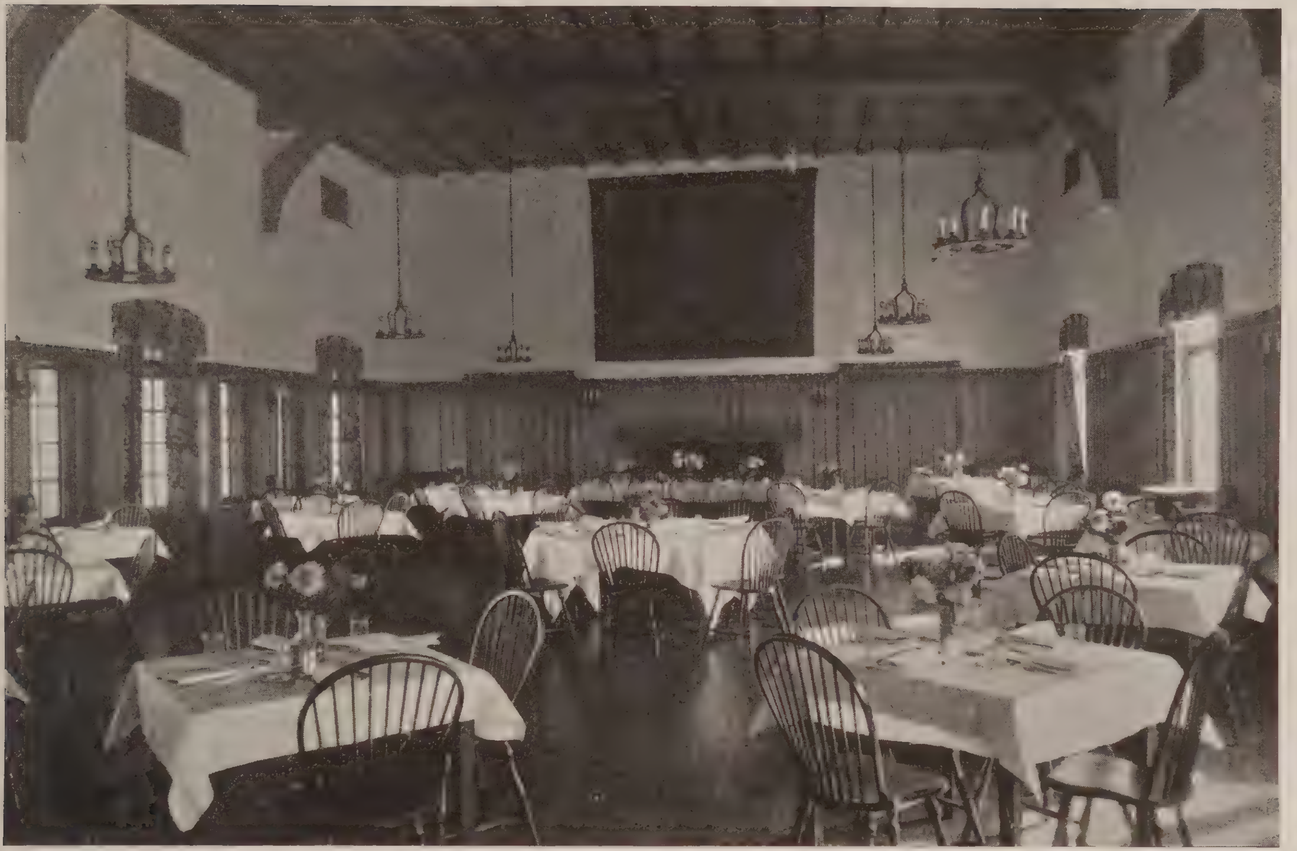
SECOND FLOOR



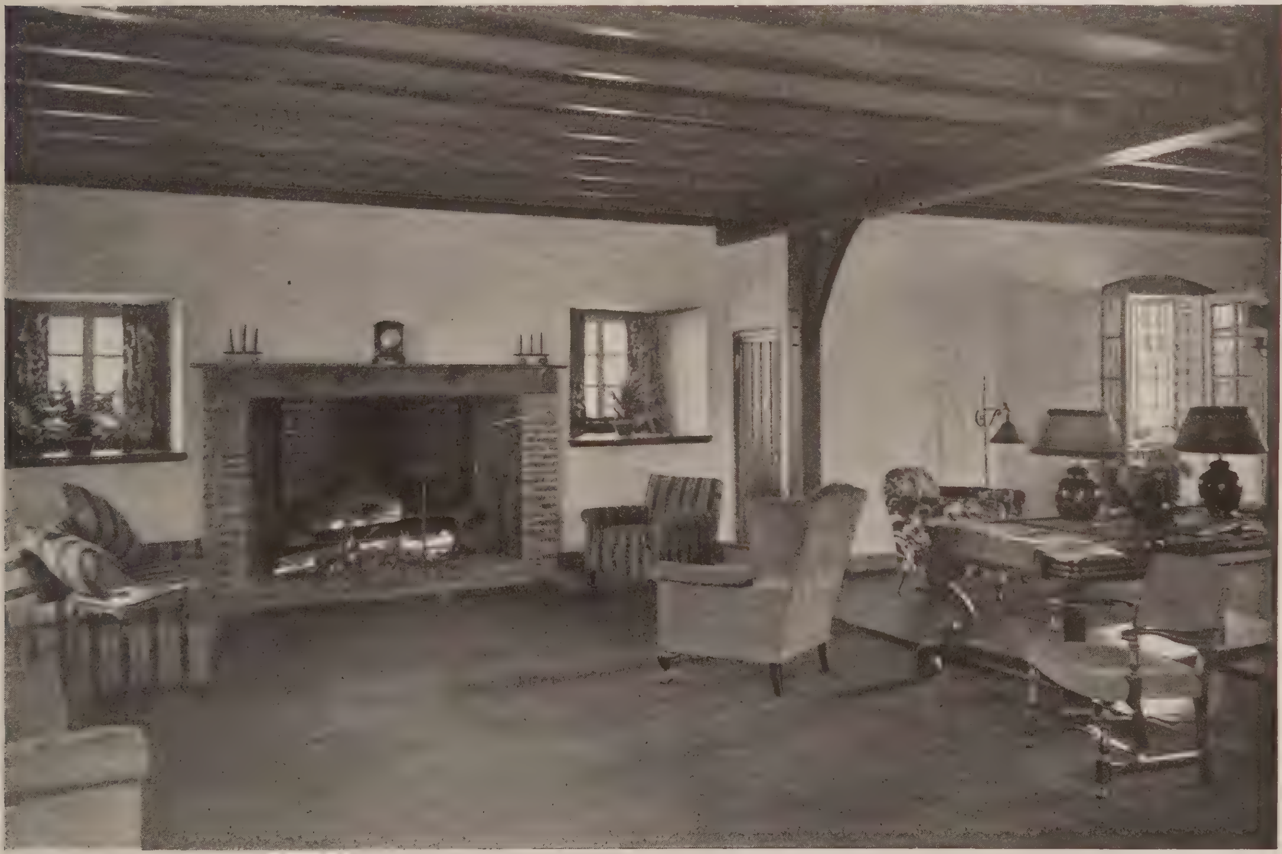
FIRST FLOOR

PLAINFIELD COUNTRY CLUB, PLAINFIELD, N. J.

ROGER H. BULLARD, ARCHITECT



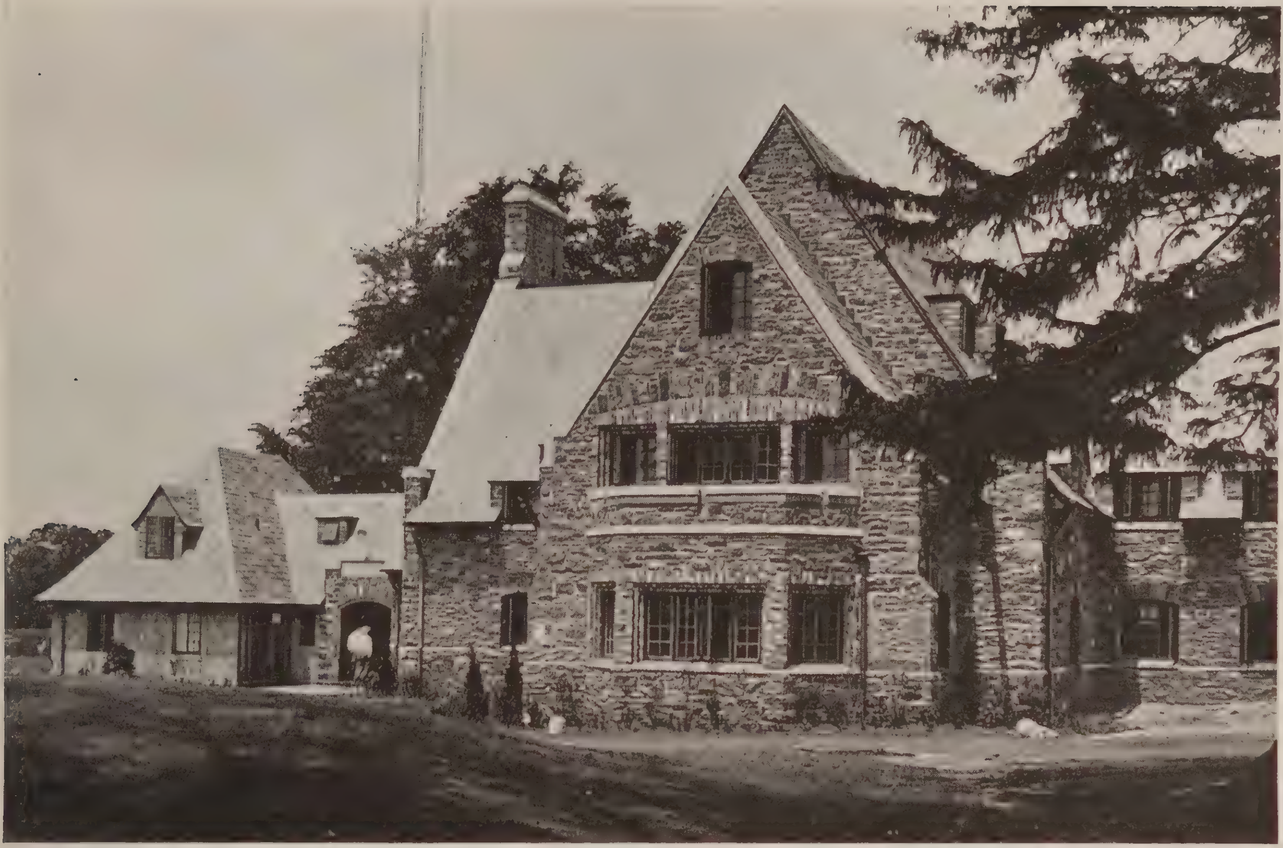
MAIN DINING ROOM



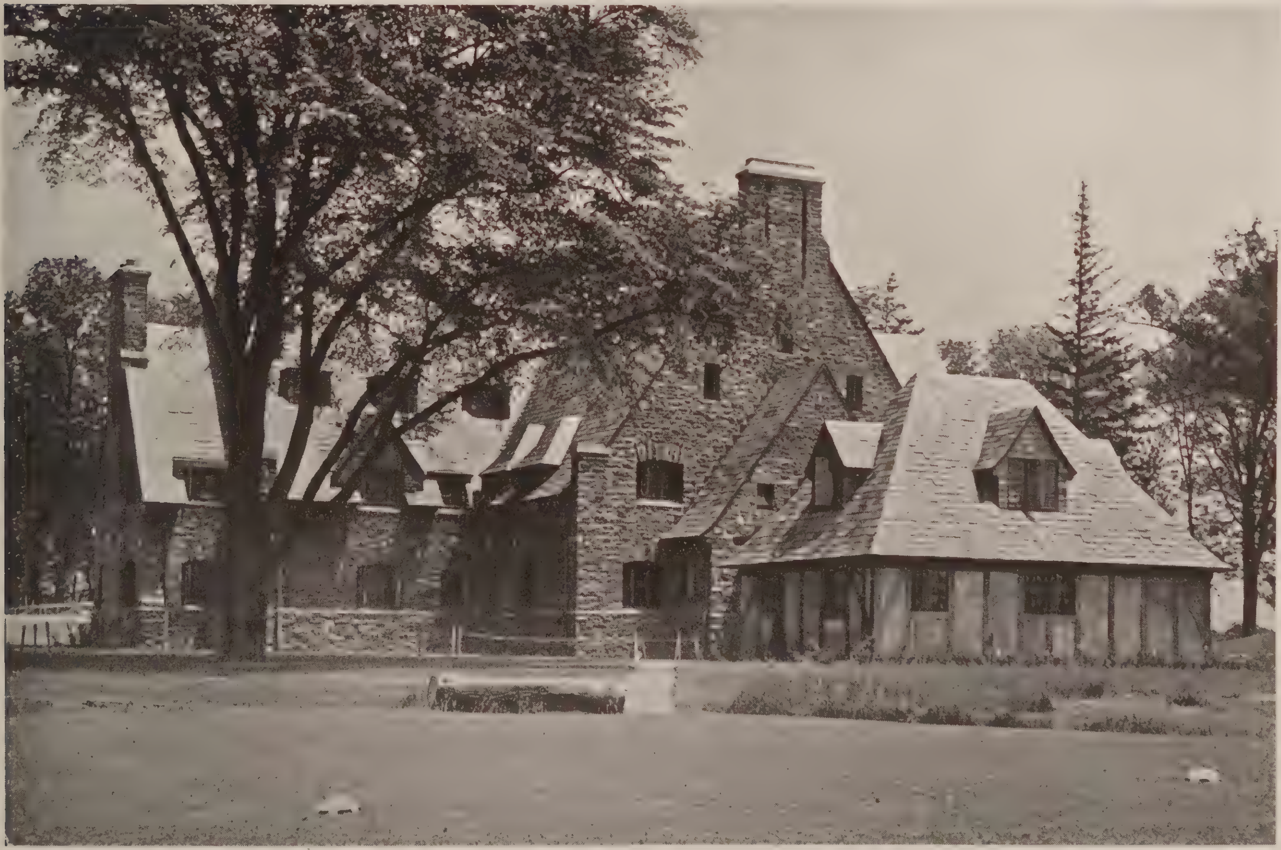
FIREPLACE IN LIVING ROOM

PLAINFIELD COUNTRY CLUB, PLAINFIELD, N. J.

ROGER H. BULLARD, ARCHITECT



LOCKER ROOM WING FROM FIRST TEE, EAST COURSE



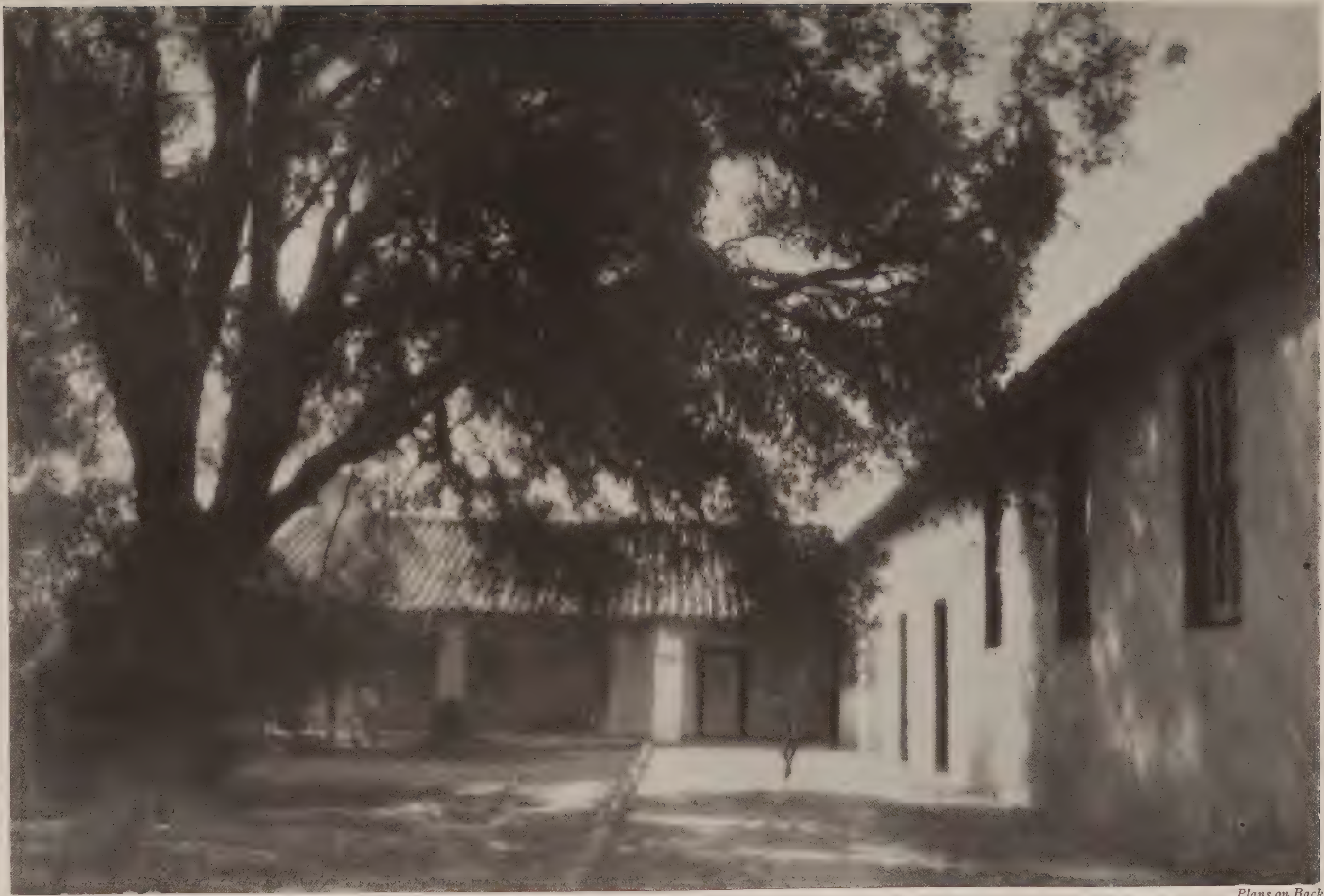
Photos. Kenneth Clark

Plans on Page 141

ELEVATION OVERLOOKING TENTH TEE, WEST COURSE

WINGED FOOT GOLF CLUB, MAMARONECK, N. Y.

CLIFFORD C. WENDEHACK, ARCHITECT

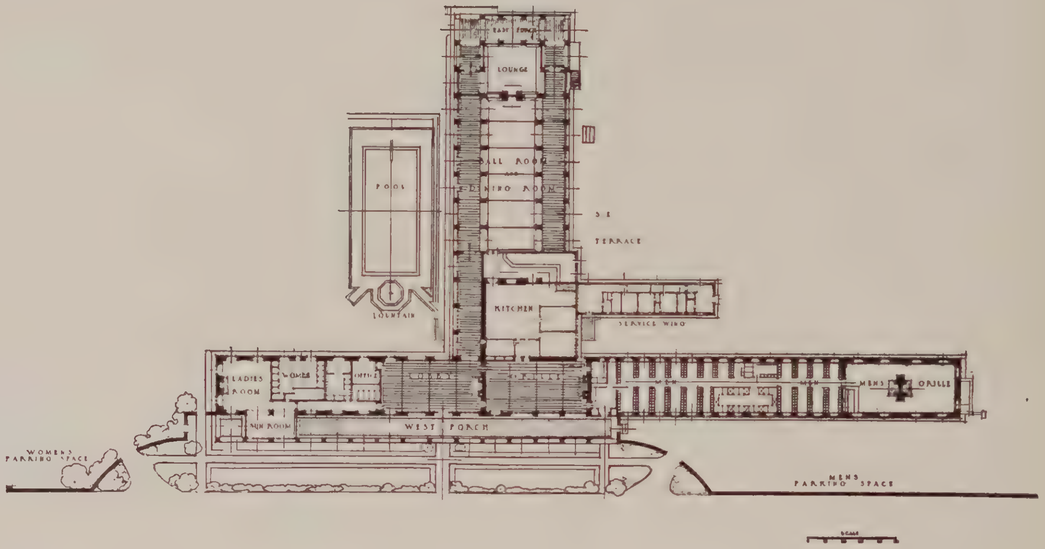


Photos. Frederick W. Martin

Plans on Back

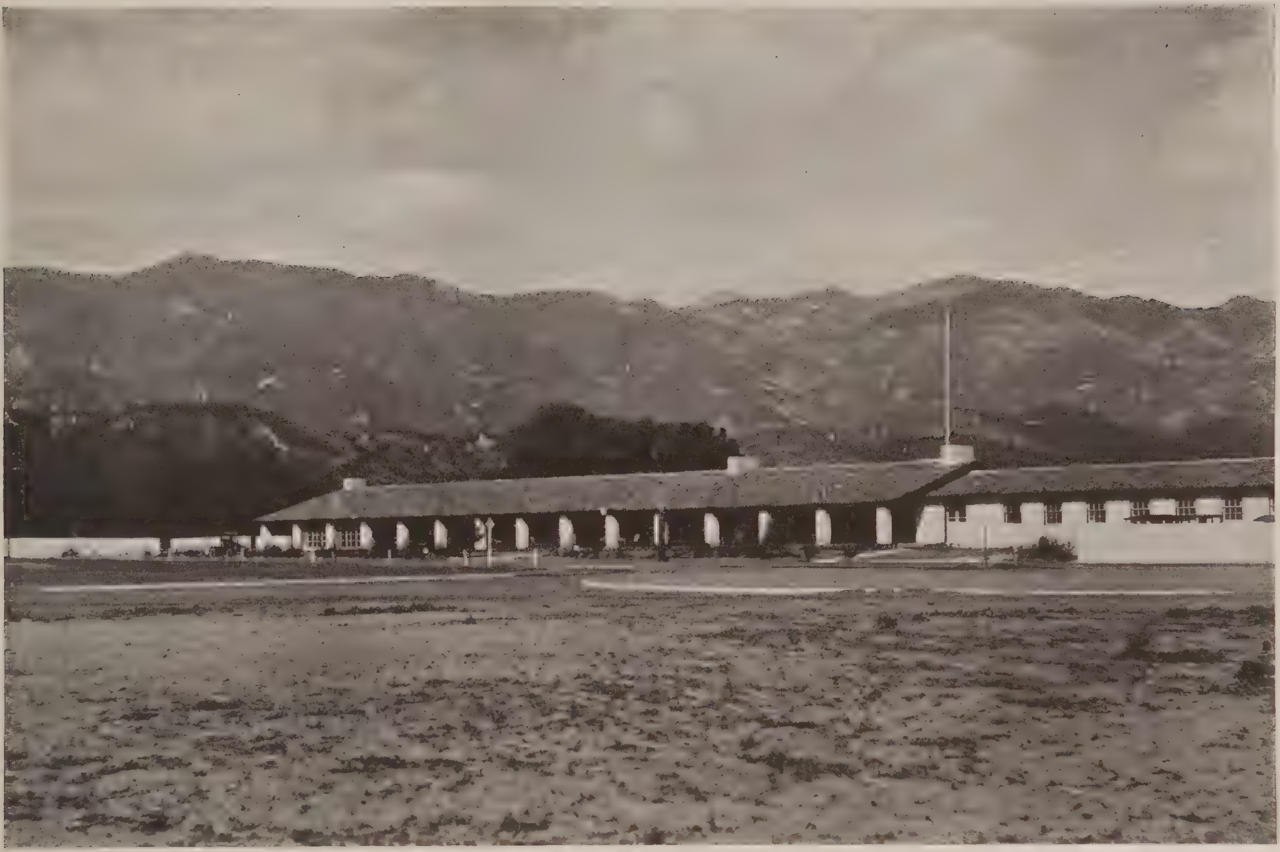
FLINTRIDGE COUNTRY CLUB, FLINTRIDGE, CAL.

MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS

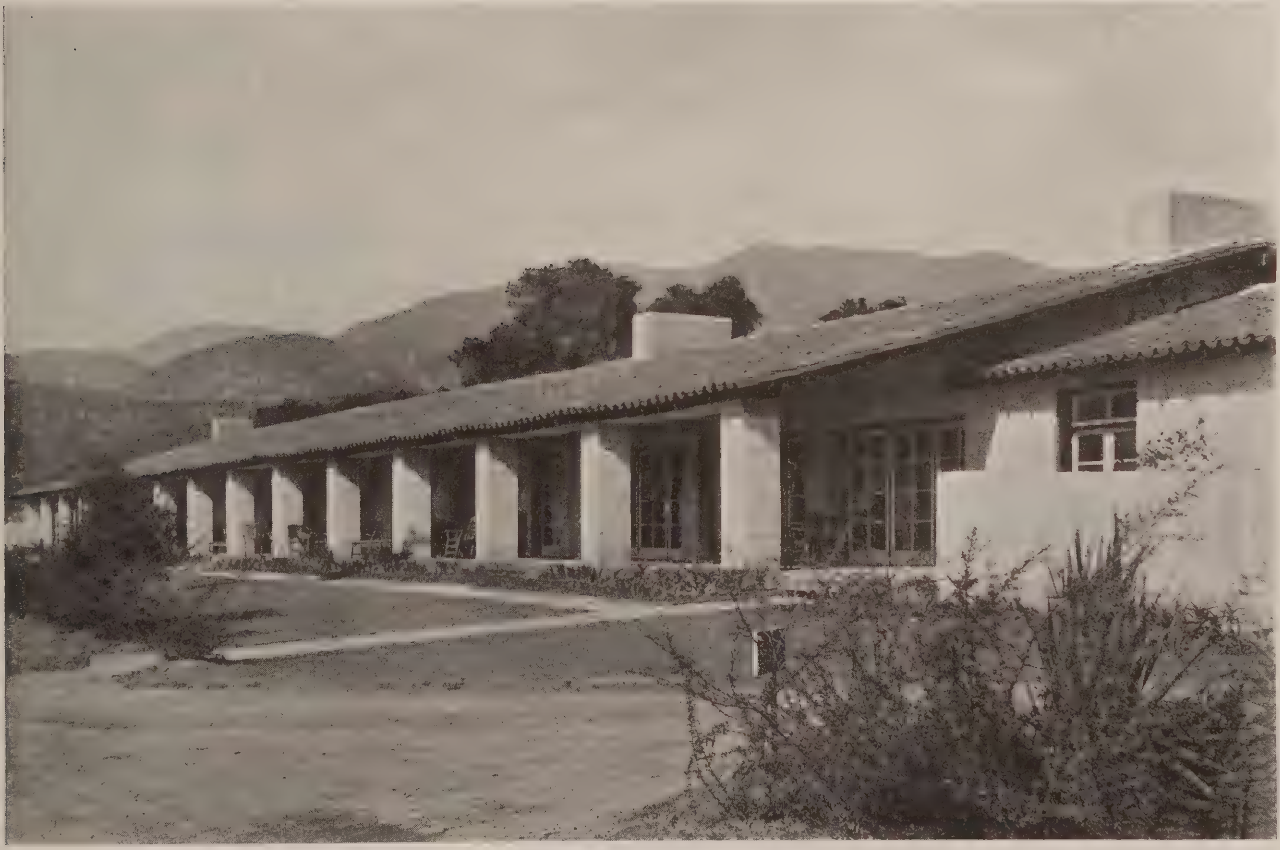


FLINTRIDGE COUNTRY CLUB, FLINTRIDGE, CAL.

MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS



WEST ELEVATION



ENTRANCE PORCH

FLINTRIDGE COUNTRY CLUB, FLINTRIDGE, CAL.

MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS

Municipal Golf Courses

THOSE IN THE CHICAGO DISTRICT AND ELSEWHERE

By HOWELL TAYLOR, *Architect*, and THEODORE J. MOREAU, *Golf Architect, Chicago*

THAT golf is fast becoming America's most popular outlet for the pent-up desire to indulge in individual sport is more and more apparent as the number of municipal and public golf courses increases from year to year. In all parts of the country large numbers of people are being won to staunch advocacy of the "royal and ancient" game through opportunities for its practice offered on these courses.

A search for the initial infection which has caused what George Ade terms "the great American rash" might lead one to the Chicago district, if statistics only are considered, for here the number of public courses exceeds by 100 per cent that of any other city in the world. Golfers use nearly 20,000 acres of land in this territory, divided into 116 courses, 28 of which are public. Twenty-five years ago all of the golf grounds in the district would not have covered more than one section or 640 acres, and the only course open to the public consisted of little more than the 30 acres of park lawn set aside in Jackson Park and designated as a nine-hole "links."

The greatest impetus in popularizing the sport in this district is due largely to the development of public courses and to the remarkably low cost of playing,—from 15 cents per round in the parks to $2.50 per day on the best private courses. Every large park has now been given its carefully developed course, which is immensely popular, and many groups of persons who play regularly have formed clubs to facilitate the making of reservations, holding tournaments, etc., all this being part of golfing.

In recent years, however, certain elemental public demands for recreational and social service have become so insistent that small and backward indeed is the community where they have not been met in some form or other, however makeshift and primitive. Among these are swimming pools, gymnasiums, libraries, community halls, night schools, lecture courses, and various clinics. The demand for golf can almost place it among the number. In Chicago it has been so great that the seven park courses, recording more than half a million rounds of golf in a single year, have been unable to satisfy the continually growing demand. This has led to the development of public courses in the forest preserves, and to that of many privately owned public courses, some of which are more completely developed than those in the public parks, and often equaling the golf courses offered at private clubs.

In considering the general subject of municipal golf it is as well to assume that all privately owned public courses must be included, for in their use and operation they are practically identical, since the public actually supports them. These may then be divided into two classes: (1) municipally owned and, (2) privately owned. Roughly, the municipal courses may be considered as permanent features

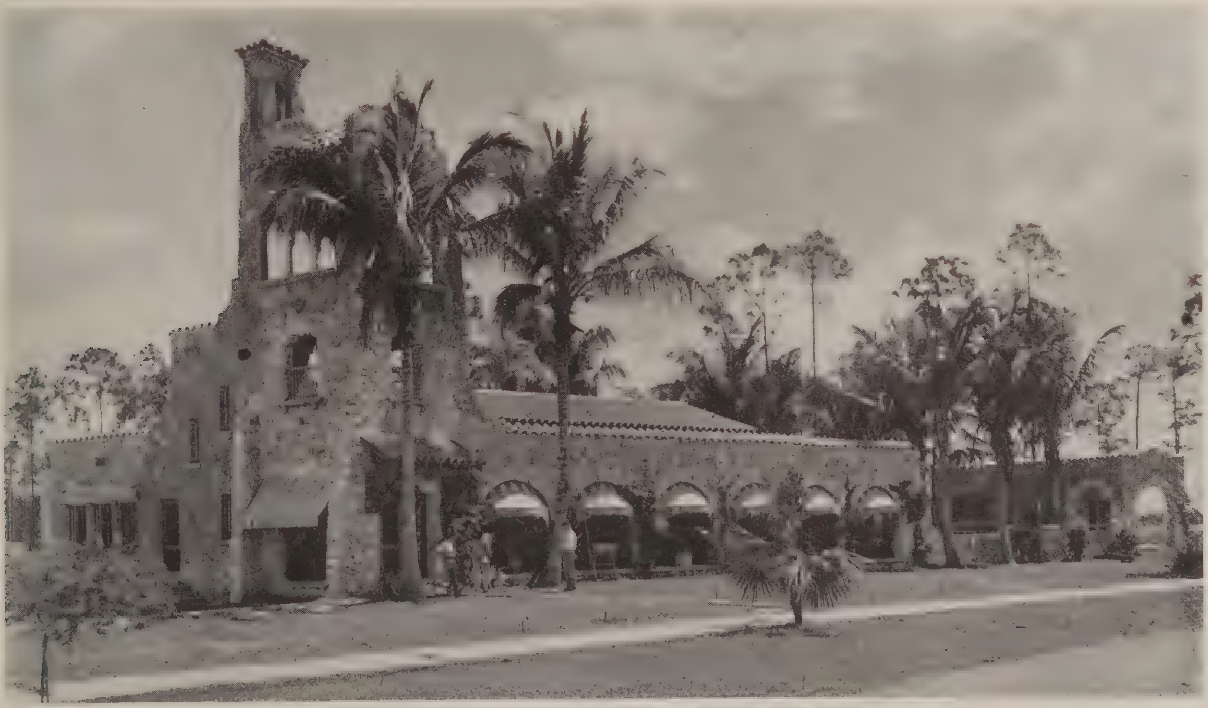


Fig. 1. Club House at Coral Gables Golf Course, Near Miami, Florida. Adjacent to the Nine-Hole Course an 18-Hole Course Is Now Being Developed with a Club House to Cost a Quarter-Million

of a definite park system, while the private courses are more likely to be temporary expedients to attract buyers to real estate projects, to enhance the value of run-down property, or to tide over the holding period of some real estate owner until he may be able to realize better profits on his investment. There are, however, many privately owned golf grounds, installed as permanent attractions of some group development, an excellent example of which is that at "Coral Gables," near Miami, Florida, with its club house costing a quarter-million (Fig. 1).

The outstanding development of this character in Chicago is the transformation of a city dump of 100 acres into a beautiful, modern golf course, known as the "Mid-city," which has been opened recently. In the heart of a thickly built up locality, it not only forms a most welcome open space but has improved the appearance of the district appreciably, since the site had been a hideous eyesore for many years. A survey showed that nearly 100 acres were available, affording ample room for an 18-hole course. The property was bought privately and converted with most gratifying results as the plan (Fig. 4) indicates, from an ash dump, long an eyesore to the neighborhood. Such a development as this may be considered one step in preparing real estate for future subdivision; in fact a definite reclamation is often quite necessary to bring up the general tone of a district before profitable use of property can be made. There are many instances near Chicago where future subdivision property has been made into a public golf course as a means of returning interest on the investment, keeping up taxes, etc., until the day when growth in population and increased property valuations should warrant subdivision.

That municipal golf is rapidly reaching out into the smaller communities is evidenced by the bond issues of $250,000 in Key West and Lake Worth, Florida—the first to convert an island of coral rock into a municipal course, and the second to reclaim a narrow strip of lake front property for the same purpose. These are both first class courses, and are comparable with those of the finest private clubs. That at Key West is the more interesting example. The course was completed recently, and deserves attention not only on account of the benefit it affords the community but also on account of the material obstacles which were overcome in its construction. The business men of Key West found that they were losing business because they had no positive attraction for tourists except fishing. Many people came to Key West but did not stay there long, soon traveling on to other points where more diversified attractions were found. Golf was undoubtedly the solution, but the building of a course on a small coral island which is none too large for the growth of the city itself and where there was no city water supply,

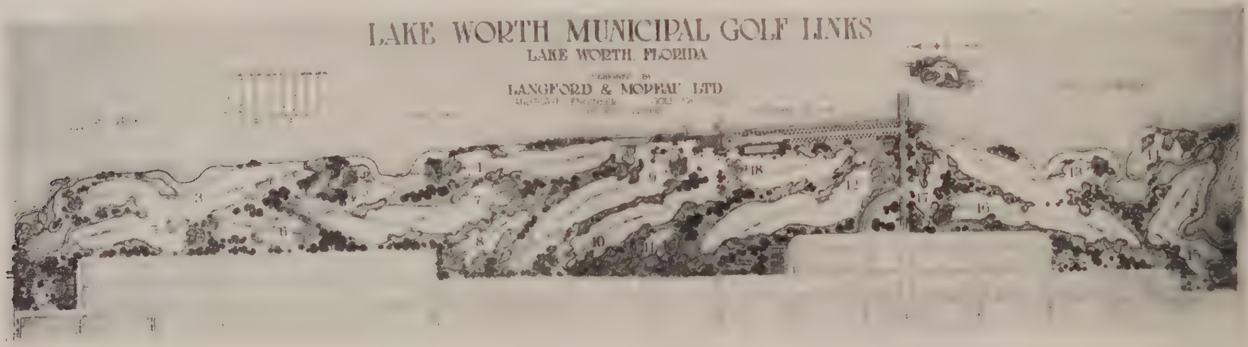


Fig. 2. Lake Worth, Florida, Is Spending $250,000 for This Development Along the Lake Front. It is Municipally Owned and Operated

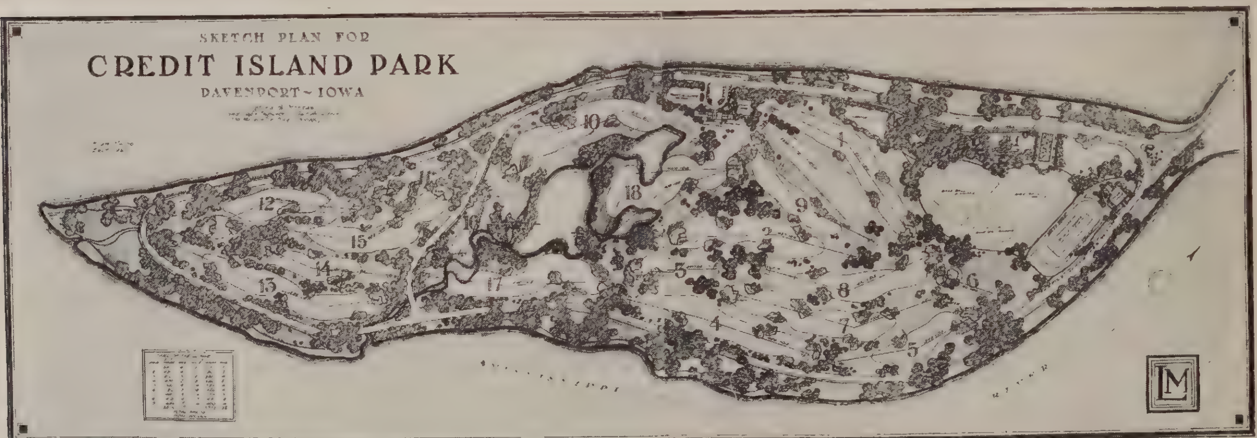


Fig. 3. At Davenport, Iowa, the Demand for Public Golf Has Led to the Building of an Excellent 18-Hole Course on Credit Island in the Mississippi River, an Unusually Delightful Setting

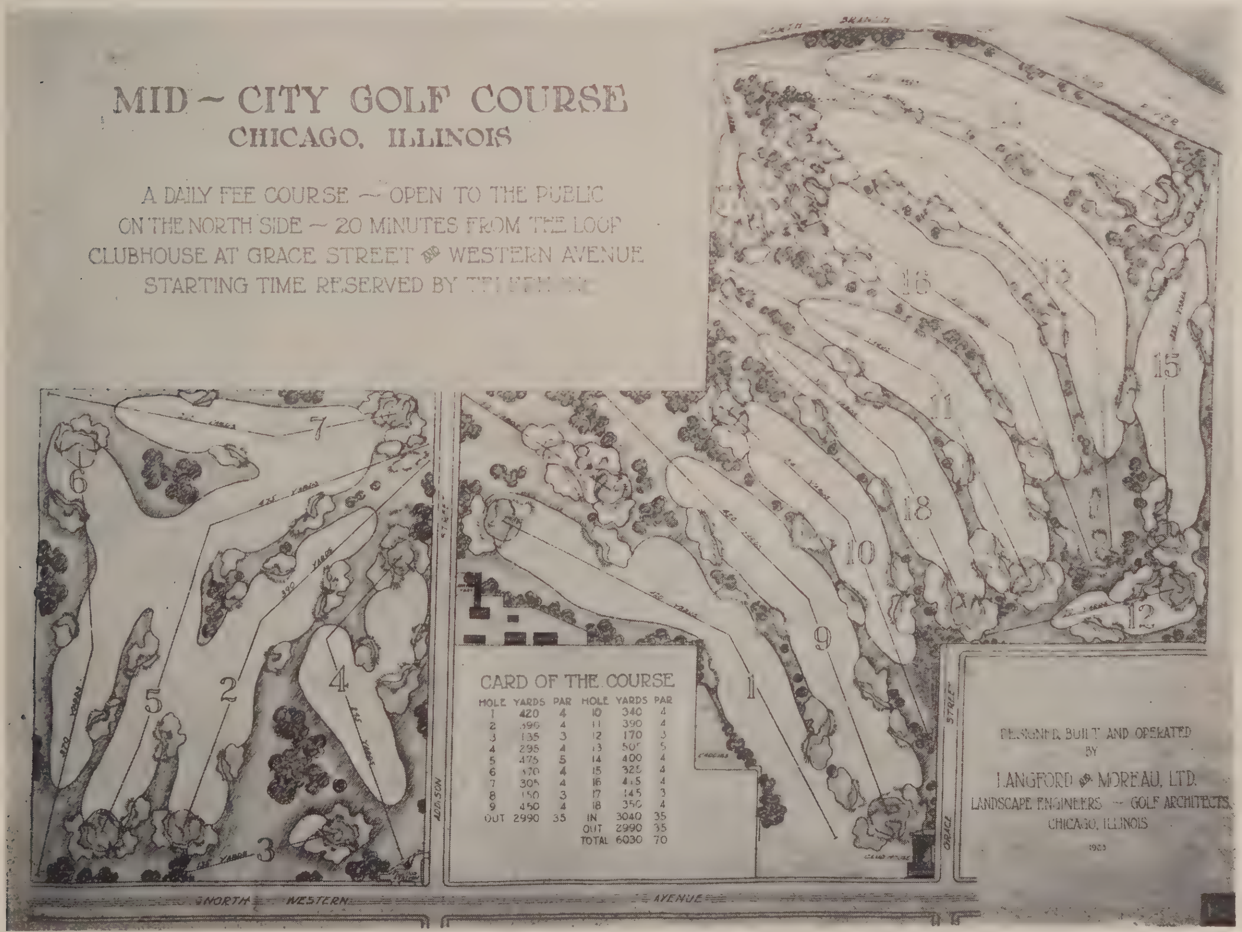
seemed at first to be an insurmountable difficulty. It soon developed, however, that the purchase of a nearby island and the use of creeping bent grass for the fairways and greens might remedy the difficulty if the water problem for keeping the greens in condition could be solved. That it was solved successfully is evidenced by Fig. 5, an illustration which shows the character of the golf course and the landscaping which has been done.

At Davenport, Iowa, a good sized river island has become a park and golf course at a considerable outlay. The attractions of such a setting are self-evident, and the plan (Fig. 3) reveals the possibilities of the site. Lake Worth, just south of Palm Beach, as already noted, is now filling a 2½-mile strip of land on the lake front for a park and municipal course (Fig. 2).

How fruitless it was for the old Scottish Parliament to decree before 1500 A. D. that "golfe be utterly cryit doun" and that "in na place of the realme there be usit futeball, golfe, or other sik umprofitabill sportis!"

Regarding the club houses on municipal golf courses, they are, of necessity, simple and unpretentious in design. By the time land has been acquired and the course laid out, a city government seldom has much money left for the erection of a club house. Often an old building located on the property acquired is made use of. By tearing down partitions and throwing rooms together, sufficient space can be provided for locker rooms and toilet facilities for both men and women. Provision for the usual social life of the players is not often made, on account of the public character of municipal golf courses. Rooms for the superintendent and greens keeper and caddies should always be arranged. In some of the larger cities, such as Chicago, a restaurant or cafeteria is included in the club house. This feature is a great convenience for golfers wishing to spend an entire day on a public course located in the suburbs of the city. If this provision is not made, small shanties, booths, tents and "hot dog" wagons will crop up along the adjacent highroad or on nearby private property, since concessions for such buildings on the public property are not always granted.

For the purpose of developing suburban real estate, companies often set aside extensive tracts of land for use as golf courses, which they later sell or lease to the city. Such was the case, says *Golf Illustrated,* in Portland, Oregon, where back in 1916 the Ladd Estate gave the city a five-year free tenancy of 148 acres of land to be owned and developed as the Eastmoreland Golf Links, a rolling stretch of land adjoining Reed College campus, with a lake on one part, and a creek on another, providing admirable water hazards. This gift of free tenancy was



MID-CITY GOLF COURSE
CHICAGO, ILLINOIS

A DAILY FEE COURSE — OPEN TO THE PUBLIC
ON THE NORTH SIDE — 20 MINUTES FROM THE LOOP
CLUBHOUSE AT GRACE STREET & WESTERN AVENUE
STARTING TIME RESERVED BY [illegible]

CARD OF THE COURSE

HOLE	YARDS	PAR	HOLE	YARDS	PAR
1	420	4	10	340	4
2	390	4	11	390	4
3	135	3	12	170	3
4	295	4	13	505	5
5	475	5	14	400	4
6	370	4	15	325	4
7	305	4	16	415	4
8	150	3	17	145	3
9	450	4	18	350	4
OUT	2990	35	IN	3040	35
			OUT	2990	35
			TOTAL	6030	70

DESIGNED, BUILT AND OPERATED
BY
LANGFORD & MOREAU, LTD.
LANDSCAPE ENGINEERS — GOLF ARCHITECTS
CHICAGO, ILLINOIS
1923

Fig. 4. Plan of Mid-City Golf Course, An 18-Hole Course in the Heart of Chicago. The Site Was Formerly a Dump

backed by a subscription of $1,800 by members of three private golf and athletic clubs. Subsequent generous gifts on the part of the Ladd Estate were a caddy house, extension of the five-year free tenancy, and the donation of the site upon which the present public club house stands. It required an expenditure of $40,000 by the city to develop the golf course. The trustees of the Ladd Estate, which paid the taxes and carrying charges of the land, admitted later that they would have done better had they donated the entire property outright, in the beginning. Interest in golf increased enormously at the close of the war, and with it receipts from the players. The operating expenses, first paid from the Park Budget Fund, were soon met by greens fees, rent of clubs, checking, concessions such as the cafeteria and the sale of merchandise, which altogether amounted to $42,877, of which sum the greens fees alone represented 75 per cent. Against these gross receipts there was entered a total expenditure of $37,605 for personal service, operation, maintenance and purchase of merchandise, thus making a profit of $5,272.

Taking into account the fact that municipal links are more costly to operate than those of private clubs and are subject to civil service rulings, through which a minimum of $5 per day is paid for common labor, personal service costs run higher when dealing with the more careless public golfer. When far greater numbers are using the links in a day, the mowing and watering of grass are not so easily handled, and the upkeep of the greens involves a more constant expense. In spite of these handicaps, the net receipts of the Portland club for 1923 showed the profit just named. Thus the game has shown itself able to pay its own way. This is only one of many instances where municipal golf has been made to pay for itself, once the initial cost of constructing the golf course and building the club house has been underwritten by a city government.

The city of Chicago has a fine system of public links built within its parks, and some if not all were built in spite of considerable objection on the part of officials, although these objections were in every case eventually followed by hearty approval. No matter how many public courses were built, and Chicago has been very liberal in this respect, there was continued congestion, showing the great and growing public interest in the game. Finally the public mind turned to the great forest preserve district, owned by the people, and located on the western side of Chicago, with its wonderful strip of 30,000 acres of woodland, reaching far to the north and south. Here many golf courses have been built, and there is still room for many more to be laid out within its confines.

For an understanding of the municipal golf course situation in the Chicago district it is necessary to go back into history to the time when the supposedly farseeing park commissioners established a series of so-called outer parks. These included Lincoln, Humboldt, Garfield, Columbus, Marquette and Jackson, besides many smaller parks. All these are now in the midst of thickly settled sections of the city, with the park property worth fabulous sums. All of these parks contain golf courses. Of the 116 golf courses in the Chicago district, 88 of them are privately and 28 of them publicly owned. That such a large proportion of the golf courses in Chicago are public and not privately owned seems to be conclusive proof that municipal golf courses can be made to pay if economically constructed and managed.

Editor's Note.—For much of the information presented in the latter part of this article acknowledgment is made to Mr. A. T. Packard and Miss L. B. Bunnett, whose articles entitled "Public Links of The Windy City," and "Can Municipal Golf Be Made To Pay?" appeared in recent issues of *Golf Illustrated*. In each of these articles many interesting details and statistics were given, showing the growing need for more municipal golf courses, and explaining the equally important fact that if properly managed they can be made self-supporting as indeed is often the case.

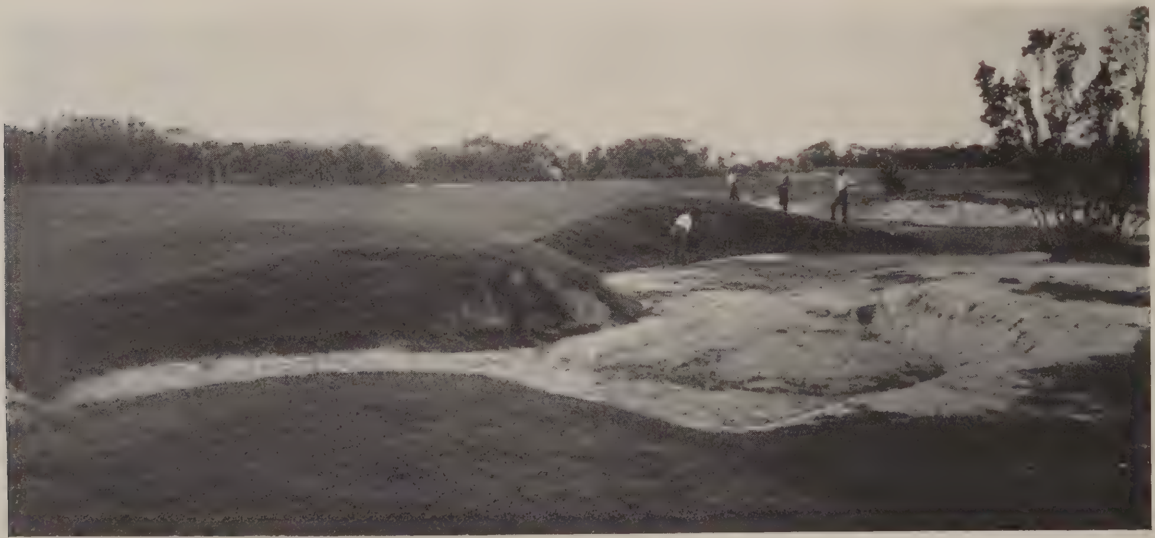


Fig. 5. Public Golf Course at Key West, Florida, for Which a Bond Issue of $250,000 Was Voted

Financing and Operating the Golf Club

By C. STANLEY TAYLOR

EDITOR'S NOTE.—The data for this article were provided by the president of a large Eastern golf club, which has recently been completed. Before developing this project, he made an intensive study of the financing and operating methods used successfully in many parts of the country, developing an authoritative background which insures the practicability of the various suggestions presented.

THE initiative in promoting a golf and country club usually emanates from one of three sources,—a group of individuals (who are interested in the development of local golfing facilities from the viewpoint of individual and community benefit; a real estate broker, who uses this method to sell a large tract of land; or a real estate developer who desires to make a profit on turning over a tract of land or to enhance the value of neighboring land in which he may be interested. It matters little from which of these sources the original idea may spring, but it is important that the new club should be promoted and operated on sound principles, which will insure the rights of all members according to the class of membership, and will protect all investments, particularly during promotion stages.

The first important thing is that the land should be selected with care, not only for its physical attributes, but for its relative location in the community and in relation to transportation. The land selected for this purpose should preferably be of undulating contour, with a brook or stream to allow for water hazards. It should be as free as possible from rock ledges, as the expense of removing or covering rock is a large item in the construction work necessary to build the golf course. There is no standard of cost for the construction of golf courses, the variations ranging from a few thousand dollars to hundreds of thousands. It is quite evident, therefore, that in selecting one of several pieces of property, it is better to pay a higher price for that which has natural advantages and represents economy in the construction of the course. Before purchasing land for this purpose, it is advisable to have a golf course architect examine it.

The question of transportation should be given serious consideration. If the golf course is to be built in the vicinity of a large city or in a metropolitan district, it should be in a locality easily accessible by railroad transportation and by motor. If the golf club is to serve a city of small size or a suburban town, railroad transportation is not an important consideration, but accessibility by good motoring roads is of great importance, and this has an appeal to the individual when membership is considered. Access by trolley line is also desirable.

As the provision of proper sewerage and water supply is absolutely necessary, it is evident that considerable cost in final development can be saved if municipal water and sewer are available at or near the site selected. It is advisable not to attempt the development of a golf course in a heavily wooded district, because the expense of removing trees and shrubs to make ready for seeding is prohibitive. Also, the general character of the land should not be too rocky, because there should be at least 3 feet of earth to prevent the ground's baking.

The terms arranged for the purchase of the land should provide a cash and mortgage basis, paying as little cash as possible and obtaining as long a mortgage term as may be practical. The reason for this is that all money obtainable through the sale of memberships is necessary for the construction of the golf course and the erection of the building.

In organizing a golf and country club, there are two systems which are in common use today. The first method is to form but one corporation, which serves in the dual capacity of owner of the property and as operator of the club. The other (and newer) plan, which is recommended as being more practical, is that two corporations shall be formed, one a holding company which owns the property, and the other a membership corporation, which leases and operates the club. Where the first plan is used and a single corporation formed, the club owns the property and requires all members to pay an initiation fee and also to purchase bonds of the corporation, these bonds bearing a nominal rate of interest, generally from 2 to 4 per cent. The price of the initiation fee can be set at any nominal figure, irrespective of the value of the property, but the price of the bond should be established on a basis such as will now be suggested. The toal cost of the improved property is estimated by adding to the original cost of the land the estimated costs of building the golf course, constructing the club house and other buildings, equipping and furnishing, constructing the necessary roads and walls, and carrying out any required landscaping. From this amount is deducted the amount of the mortgage, so that the net required investment is determined. To this amount should be added a contingency fund of 15 or 20 per cent, because in almost all cases the cost of improvement is figured too low, and new ideas are developed during construction for which such a contingency fund is needed. Having determined this final sum, it is divided by the number of full privileged members who will be admitted to the club. In most instances a club having an 18-hole course will have from 250 to 400 playing members, and by dividing the required net investment by the established number of players, the value of the bonds which must be purchased by each member can be determined. It is not absolutely essential—in fact it is inadvisable—that the mortgage be entirely removed. In most metropolitan areas the cost of the property and its development is so great that it is impossible to sell membership at a price high enough to remove the total indebtedness. It is not infrequent for a club in the metropolitan districts to have a fixed indebtedness in the form of a mortgage, ranging from $150,000 to $300,000. In the second plan, where two corporations are formed, the stock of the holding company should have no par value, and the number of shares issued, whether in blocks of five or ten, makes little difference so long as the total number of blocks issued is not greater than the number of members who are to enjoy full playing privileges. In this case the funds for land purchase and construction are obtained through the sale of stock in the holding company, which is in favor of the club because the stock does not bear interest, while in the first plan the bonds do carry an interest charge. In both instances the original investors, who enjoy full membership privileges, have an equal equity in the ownership of the land and buildings and the money increment in value which might accrue, but in no case do members who come in on a part privilege basis have any part of this interest.

The question naturally arises why it would not be simpler to charge an initiation fee to cover the full amount necessary for the investment, or in other words, an amount equal to the price of stock or bond issues, thereby eliminating these issues. The reason for this is that it is necessary to pay 10 per cent government tax on initiation fees, and this is avoided by adoption of the stock or bond system.

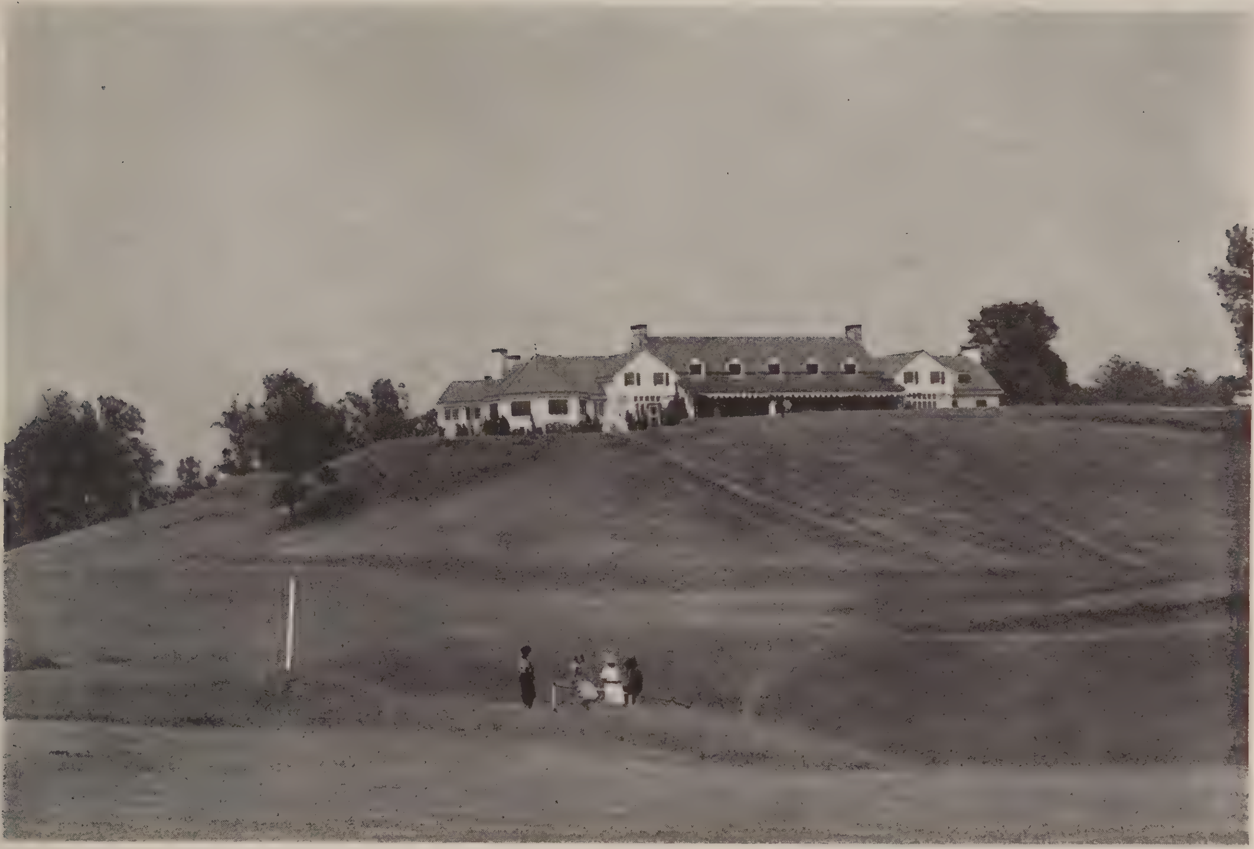
It is also our understanding that for tax purposes even stock and bond proceeds of the single holding and operating company (first plan) *are counted as initiation fees, and subjected to luxury tax.* The plan of having two corporations is recommended in every instance.

In the promotion of a typical club of 300 members, an interesting procedure has been successfully developed: the total amount of stock or bonds is divided into three equal lots for 100 members each. The memberships in the first group are sold at 25 per cent below the actual established price. The 100 memberships of the second group are sold at the established price, and those of a third group at a 25 per cent increase over the established price. Thus the total sales provide the desired investment. The establishment of this sliding scale offers an objective for the first group of investors, who must perforce come in on a speculative basis. By the time the second group comes in the project is well under way, and when the last hundred members join, the club has been established and the speculative element has been entirely removed. Also, the security is greater, because the land has increased in value and the project is fairly well assured of success. It may also be noted that the first members who join will have to wait for a period of anywhere from one year to 18 months until the club is sufficiently completed for them to enjoy its privileges. The last members who join come into a going club, where use of privileges is immediate.

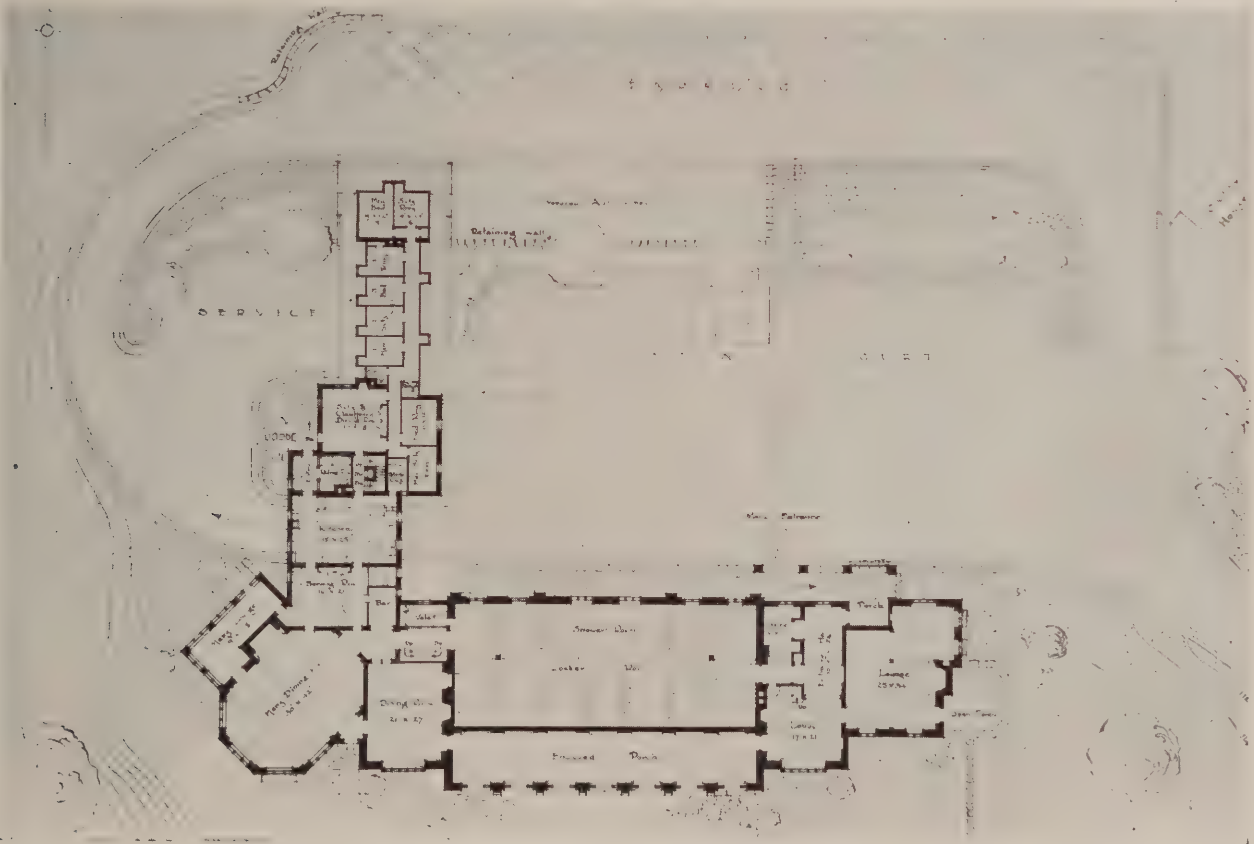
In selling the stock or bonds, it is preferable to obtain full payment at once, but if because of existing conditions it seems desirable, payments may be arranged on a time basis. In no case should payment of less than 10 per cent of the purchase price of the stock or bonds be allowed, as in most states payment of this amount is necessary by law to constitute an agreement, and when a membership contract is entered into, it should be sufficiently definite in its legal nature to make it difficult for the member to change his mind during the period of development.

It is, of course, important that the property be tied up by an option or a sales contract before the promotion of the club is undertaken and during the period when the fact is being definitely established that there is a logical demand for the new club. After the option is obtained, a golf architect should be employed to definitely lay out the course. Minor changes may be made at a later date, but in selling the memberships it is a great asset if the layout of the golf course and the elevation and floor plans of the club house can be shown to prospective members. The first funds available through the sale of stock or bonds and through initiation fees should be used for building the golf course, as even after the construction period about six months must elapse from the time that the course is seeded until it is played upon. In the northern part of the country the best results for establishing turf are obtained if the seeding is done in the fall, while in the south the period of planting is not so important. Another reason why the golf course construction should be started before beginning the erection of buildings, is that prospective members are impressed by the fact that work has already been begun, and this can be done, even in a small way, with the very first funds obtained. Judging from the general experience on a number of golf club developments, it seems inadvisable to build a golf course on a straight contract price, since no matter how well the course is laid out, changes are made as the construction work is being done. Golf course architects can give a fairly well approximated estimate of the cost of construction, but to this estimate it is wise to add about 25 per cent, because various unforeseen items develop which should be amply covered in the general estimate made at the beginning of operations.

When the plan of two corporations is used in promoting and operating a golf club, it is customary for the holding corporation to lease the completed property to the membership or operating corporation under a standard form of lease whereby the building and premises must be maintained in good order and all taxes and insurance paid regularly. The rental involved in this lease is established by computing the interest charges on all mortgages or other indebtedness plus any sum which the directors may wish to establish as an amount which they intend



VIEW OF SOUTH FRONT OVERLOOKING GOLF COURSE



PLAN OF CLUB HOUSE AND SURROUNDINGS

OAKLAND GOLF CLUB, BAYSIDE, N. Y.

Roger H. Bullard, Architect

to use as a sinking fund for reducing funded indebtedness. When the club reaches the stage of a going institution, the holding corporation which owns the property becomes virtually inactive, its functions having been fulfilled when the promotion, financing and construction are finished. No funds accruing to the holding corporation are used for improvements on either the golf course or the club house. Only revenue accruing from operation of the club and from membership dues or initiation fees is used for this purpose. The lease is usually made for a period of five years, and as the full playing membership of the club and the stockholders of the land corporation are identical, it is not necessary to have the privilege of renewal or other restrictive clauses, except to clearly define the rental and the responsibilities of both parties. It is, in fact, inadvisable that the lease should be for a period longer than five years, since a number of unforeseen contingencies might arise which would necessitate an increase in the rental charge. For instance, refinancing might be necessary, involving legal fees and a higher rate of interest.

It is important that the resale of stock by members shall be definitely controlled, so that playing memberships may not pass to undesirable persons.

Usual practice calls for having not more than five directors in the corporation owning the property. The organization of the membership corporation, which leases the property, is made along the usual club lines, calling for 15 governors or trustees, with the usual offices of president, two vice-presidents, secretary and treasurer. The annual dues for the full playing member (who holds stock or bonds) in the average club runs anywhere from $125 to $200. Other classes of membership in the average club are: junior; house; associate; non-resident, etc.

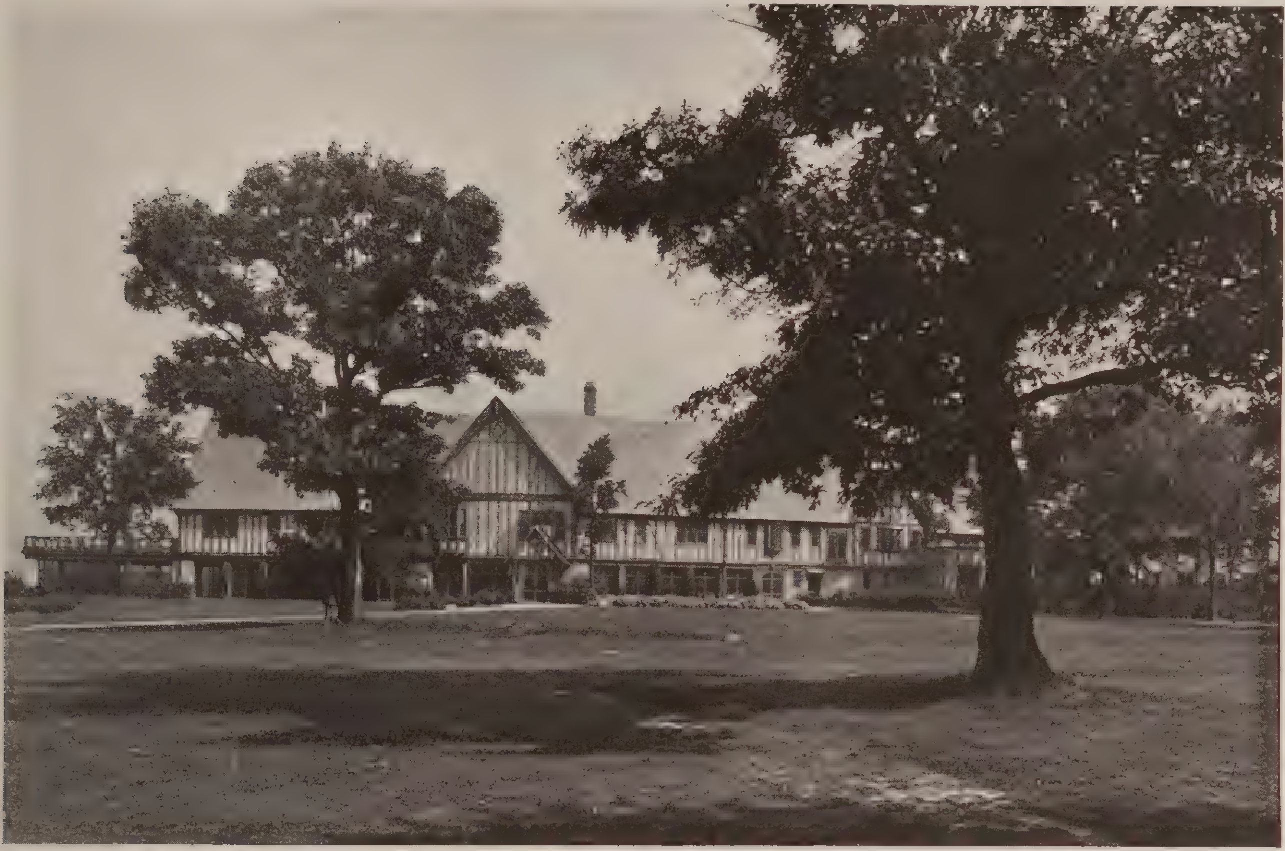
To qualify for a junior membership, one must be under 21 and the son of a regular member. No initiation fee is charged, and very nominal dues are established, for example, from $25 to $40 per year. House members pay an initiation fee of anywhere from $100 to $200, and dues from $50 to $100. Associate members pay an initiation fee anywhere from $150 to $200, and dues from $75 to $125 per year. The non-resident members usually pay $50 initiation fee and nominal dues, the definite amount depending upon whether they have to pay the greens' fees. The qualification for non-resident membership is that the individual shall live at least 50 miles from the golf club. All of these prices are established as based upon custom in metropolitan and Northeastern golf clubs. The full-playing or stock-holding member has full privileges of golf course and club house without payment of additional fees. This usually holds true for his wife and daughter under 21 (whose hours of play on Saturday and Sunday are restricted). The associate member has full privileges of the club house or golf course excepting on Saturdays, Sundays and holidays. The house member has full privileges of the club house, but no privileges of the golf course. The junior member has privileges of club house and golf course, with the exception of Saturdays, Sundays and holidays. The non-resident member has full privileges of club house and golf course. If the club has tennis courts, swimming pools or other additional facilities, these are usually granted gratis to all members, or if a fee is charged, all classes of membership pay the same fee.

In operating a golf and country club there are two sources of income which might be termed net profit. These are the membership dues and the greens' fees. Generally, the total amount obtained from these two sources is divided into three parts: one third for the maintenance of the golf course; one third for the maintenance of the buildings, and one third paid to the holding corporation. It is customary to have the operation of the club under committees' control, and these committees appear in practically all golf clubs: executive; finance; house; admissions; greens; handicap and tournament. Additional committees are sometimes added, depending upon the type of club or the extent of the facilities which the club may have. These might include the entertainment committee; insurance; tennis; furnishings and equipment; grounds, etc.

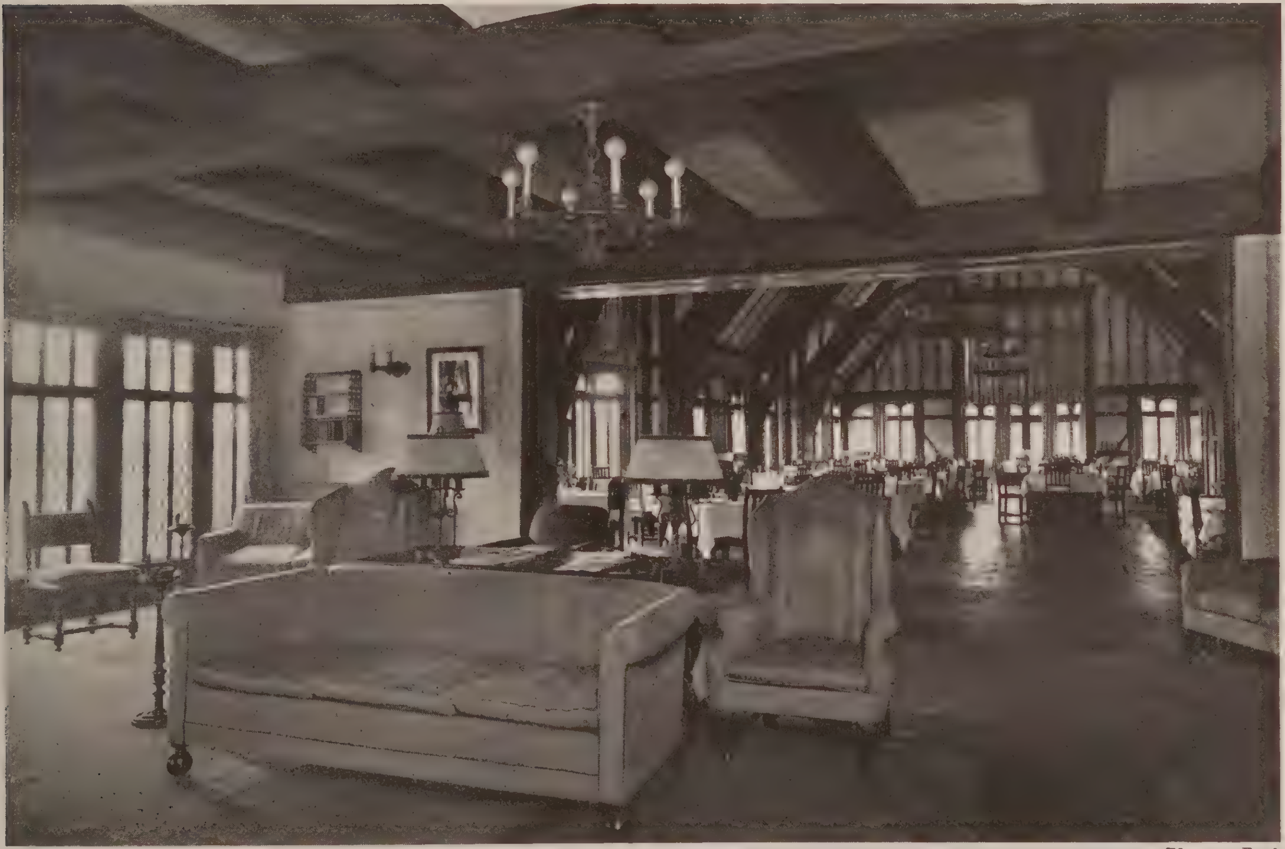
In operating personnel, three executive individuals are necessary: (1) club manager, who is nominally in charge of the entire premises, but whose duties are directly limited to the operating of the club; (2) greens' keeper, whose duty is limited to the maintenance of the golf course; (3) a professional, who is in charge of the golf shop and caddies. In some cases the professional employed has had considerable experience in golf course maintenance, so that he has charge of maintenance as well, thereby doing away with necessity of having a greens' keeper, and replacing him with a foreman.

The problem of operating a restaurant is difficult at best, and when this is done it is advisable that a manager be employed who is thoroughly experienced in restaurant operation. In addition to the regular restaurant service, most clubs have also a grill room service which is used principally for luncheon. The question of food service is discussed in another article in this issue, making it unnecessary to undertake any further consideration here.

During the period of construction it is advisable to establish two committees, one to handle the problems involved in the construction of the golf course, and the other to function similarly for the construction of the club house. These committees should be small, having not more than three members each, in order that they may function without delay. The golf course architect should be employed not only to lay out the course but also to supervise its construction. The golf course architect usually completes the entire layout of the property except of the grounds immediately adjacent to the club house, where a landscape architect is employed to design walks, gardens, and other decorative features.



FRONT ELEVATION



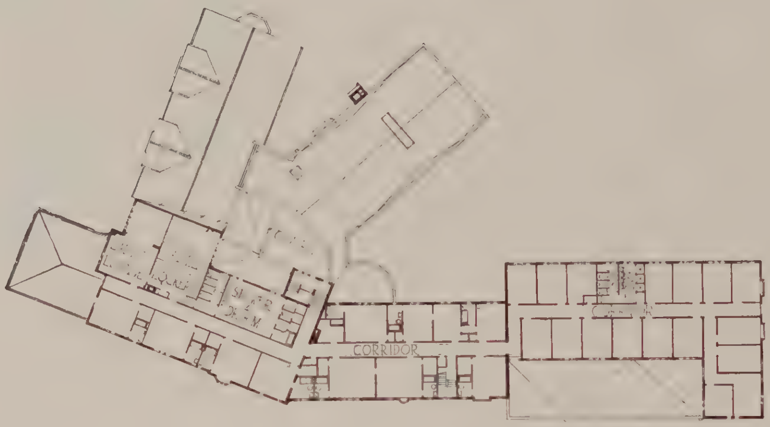
Photos. R. W. Trowbridge

Plans on Back

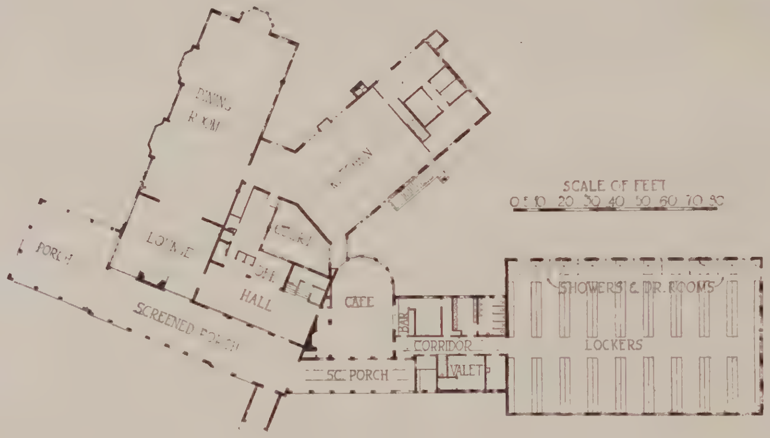
VIEW OF DINING ROOM FROM THE LOUNGE

GLEN VIEW CLUB, GLEN VIEW, ILL.

HOLABIRD & ROCHE, ARCHITECTS



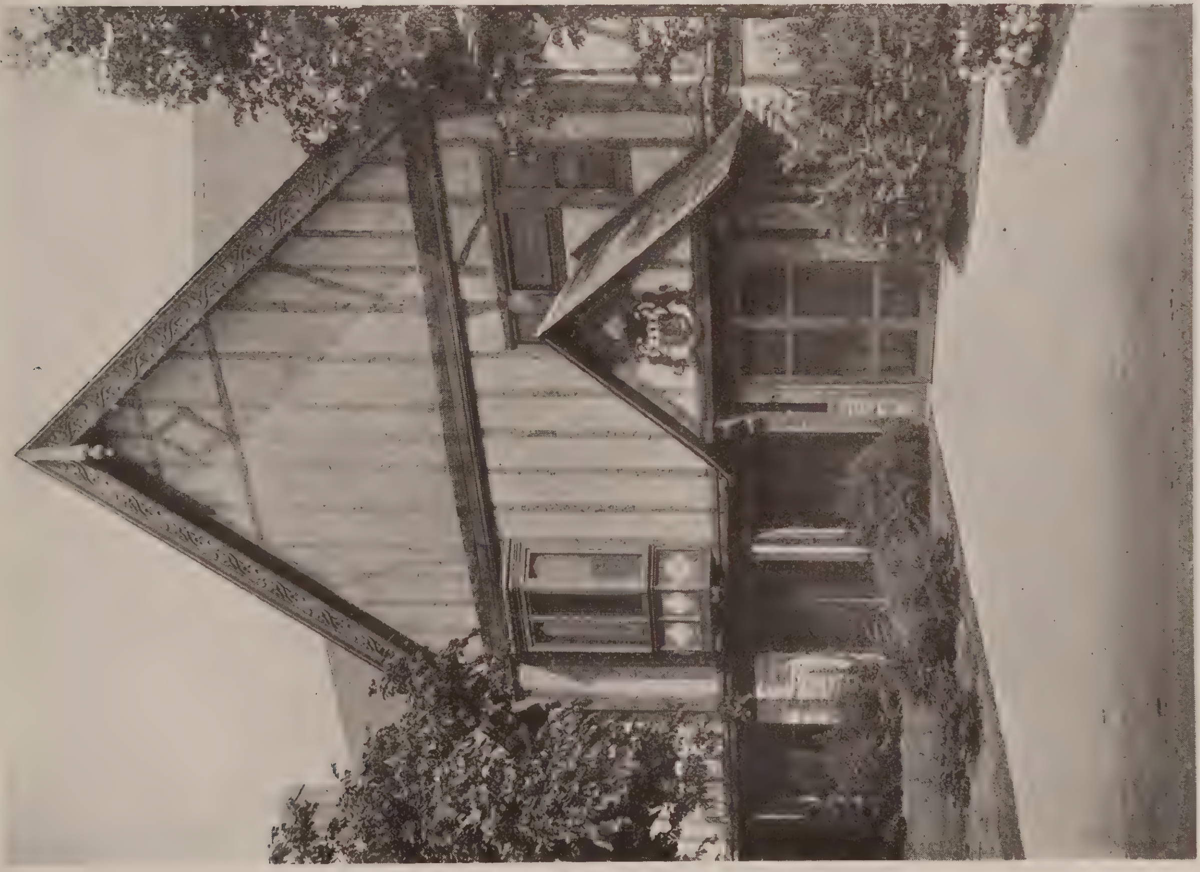
SECOND FLOOR



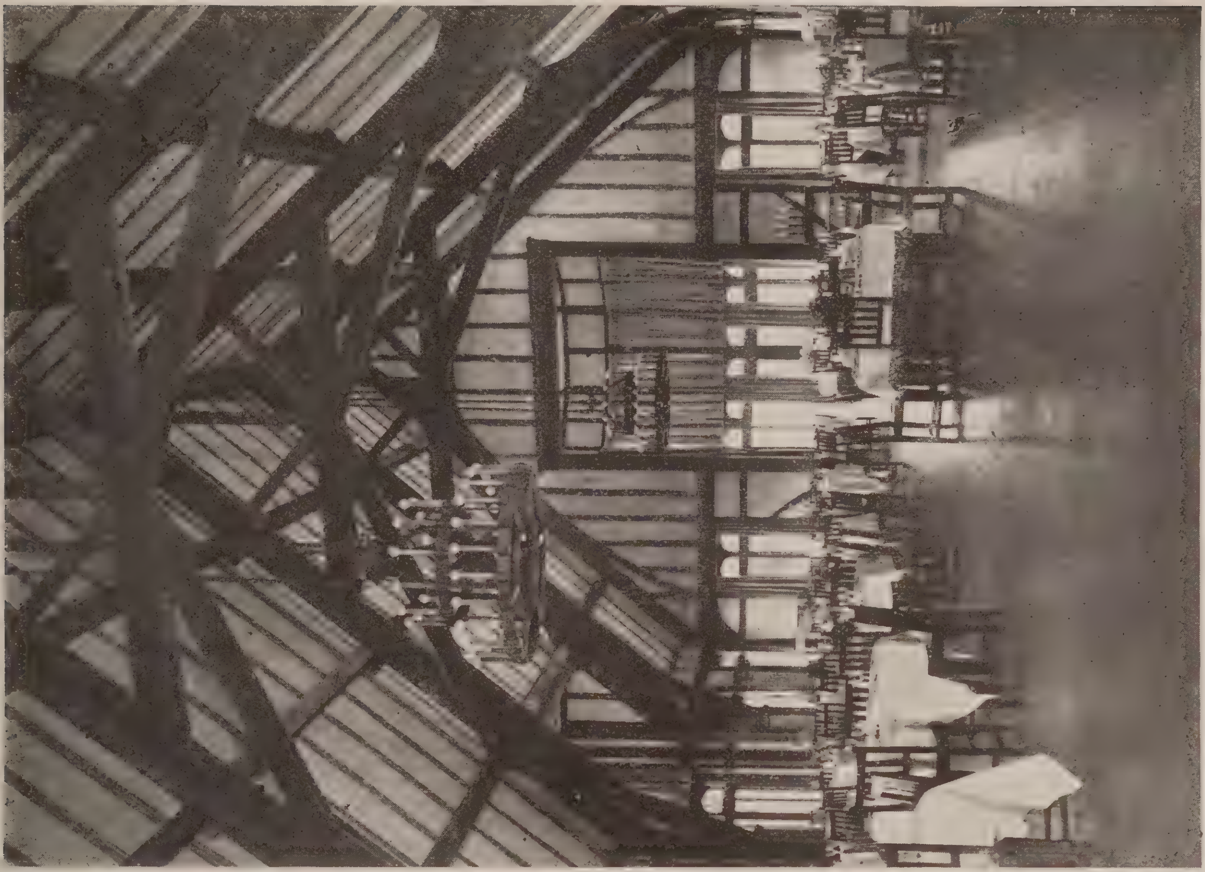
FIRST FLOOR

GLEN VIEW CLUB, GLEN VIEW, ILL.

HOLABIRD & ROCHE, ARCHITECTS

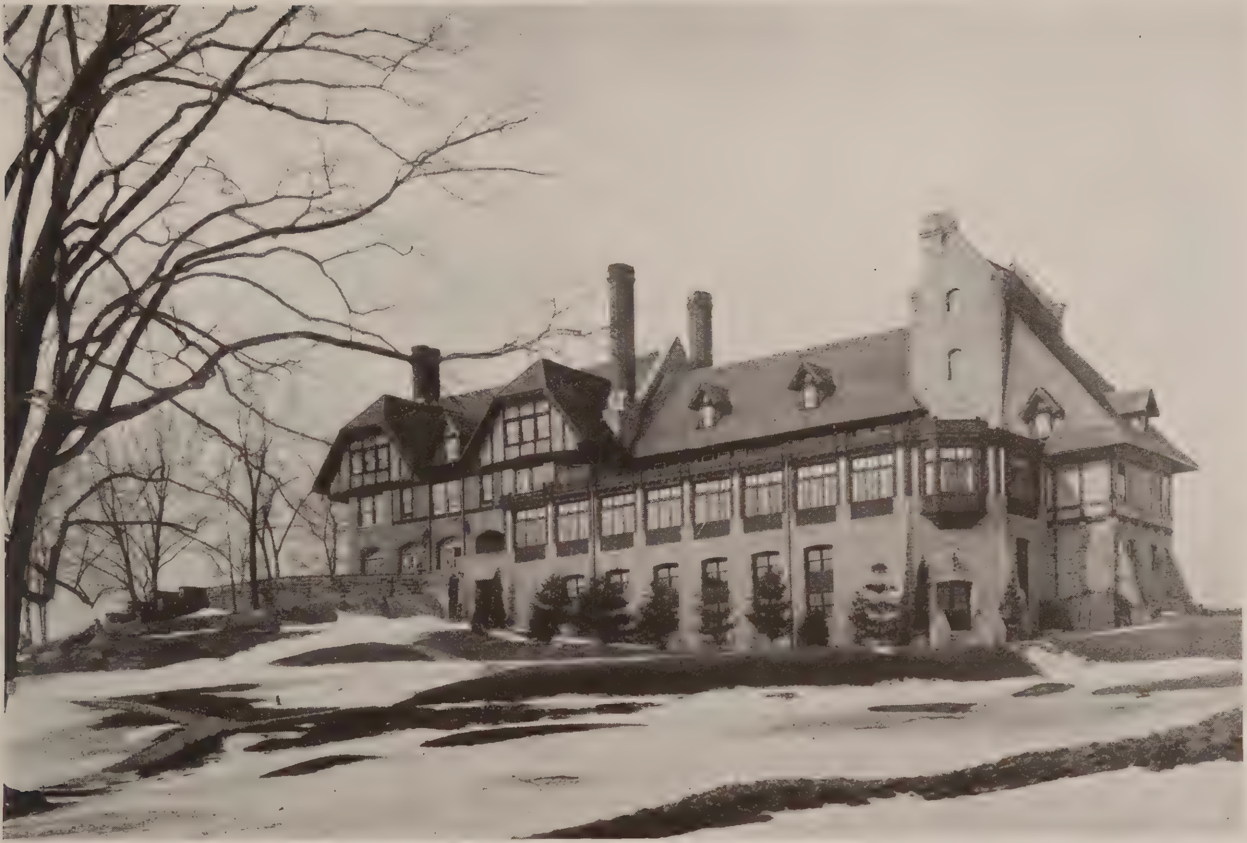


ENTRANCE DETAIL

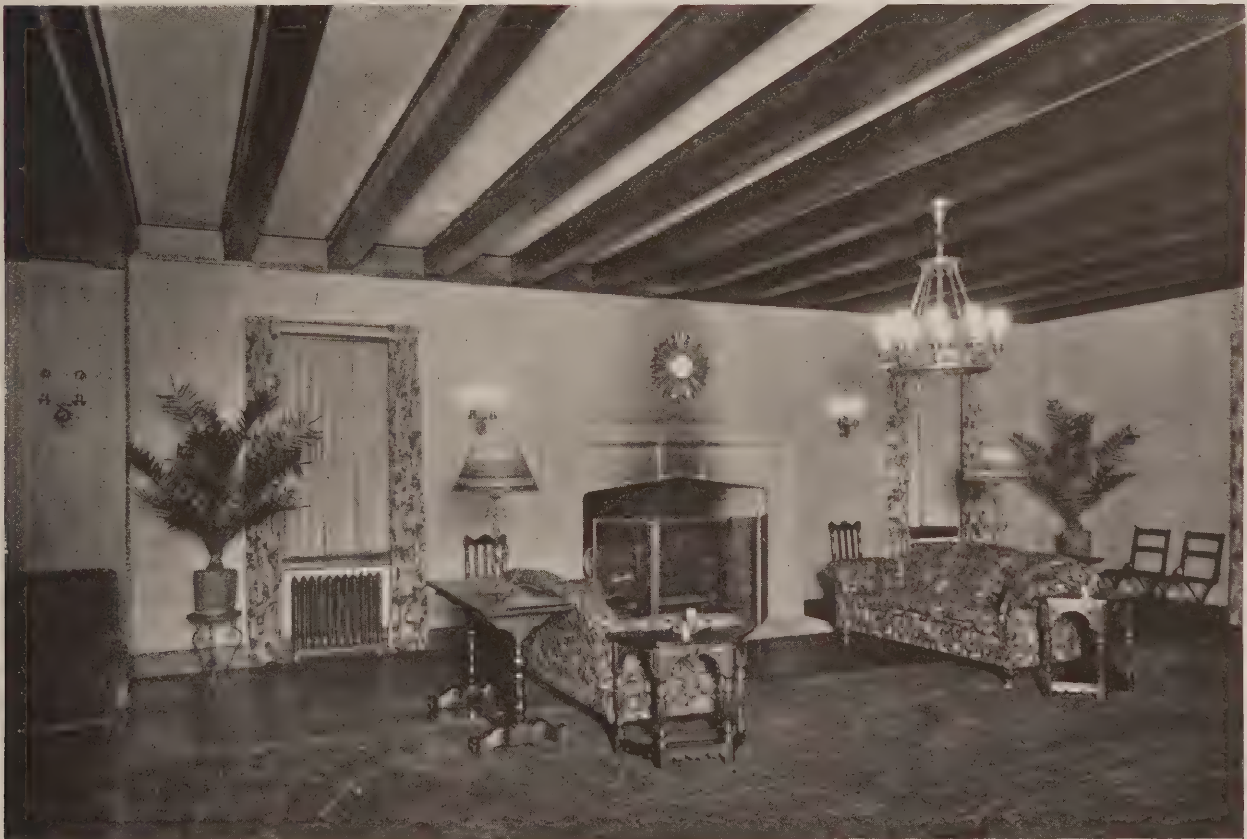


DINING ROOM

GLEN VIEW CLUB, GLEN VIEW, ILL.
HOLABIRD & ROCHE, ARCHITECTS



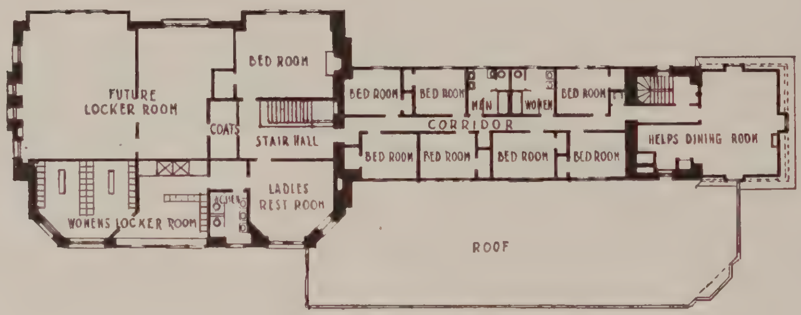
SOUTH ELEVATION



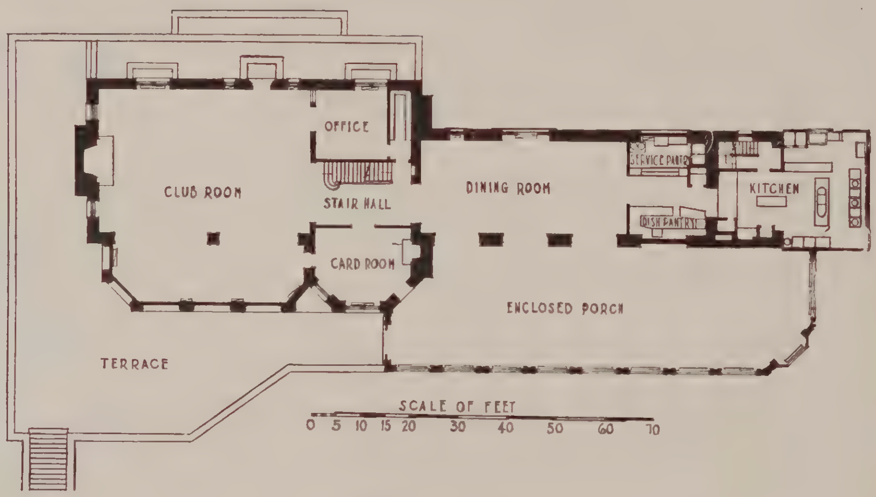
Plans on Back

DETAIL, LIVING ROOM

BONNIE BRIAR COUNTRY CLUB, LARCHMONT, N. Y.
TROWBRIDGE & LIVINGSTON, ARCHITECTS



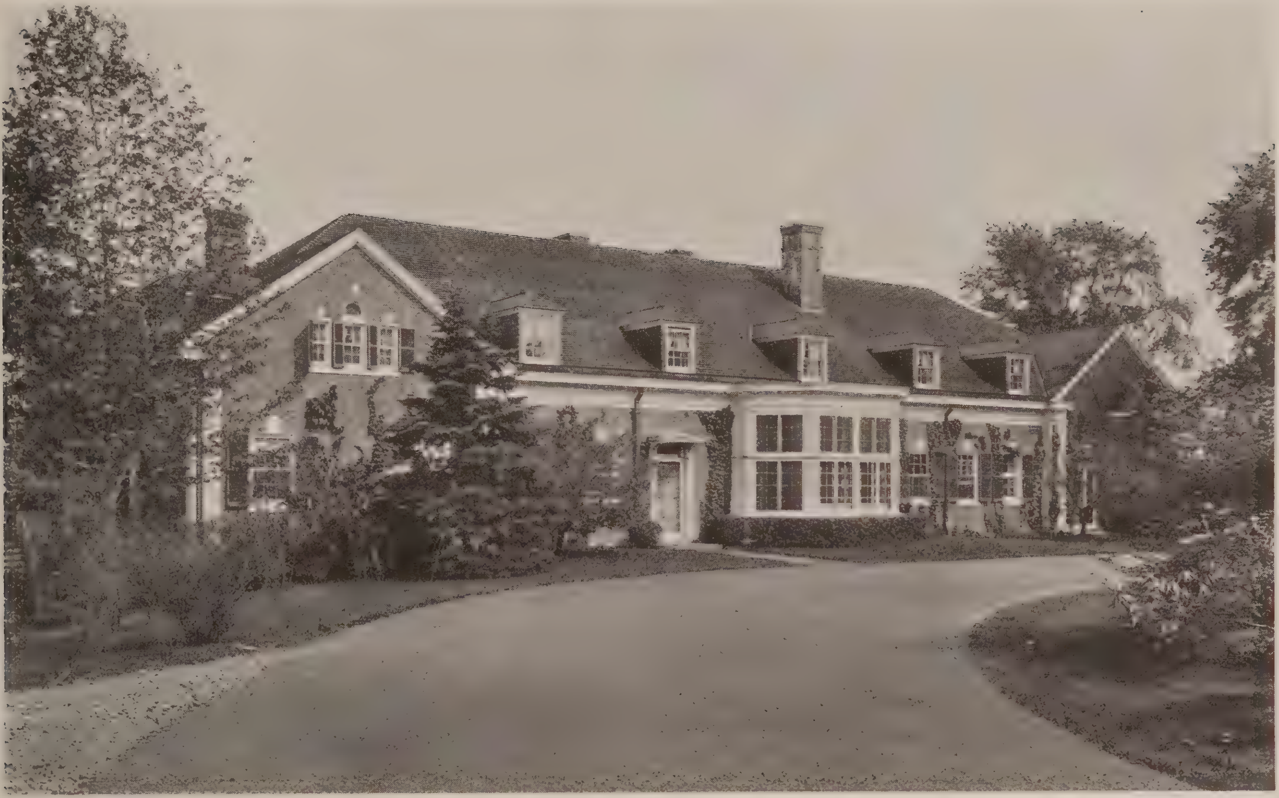
SECOND FLOOR



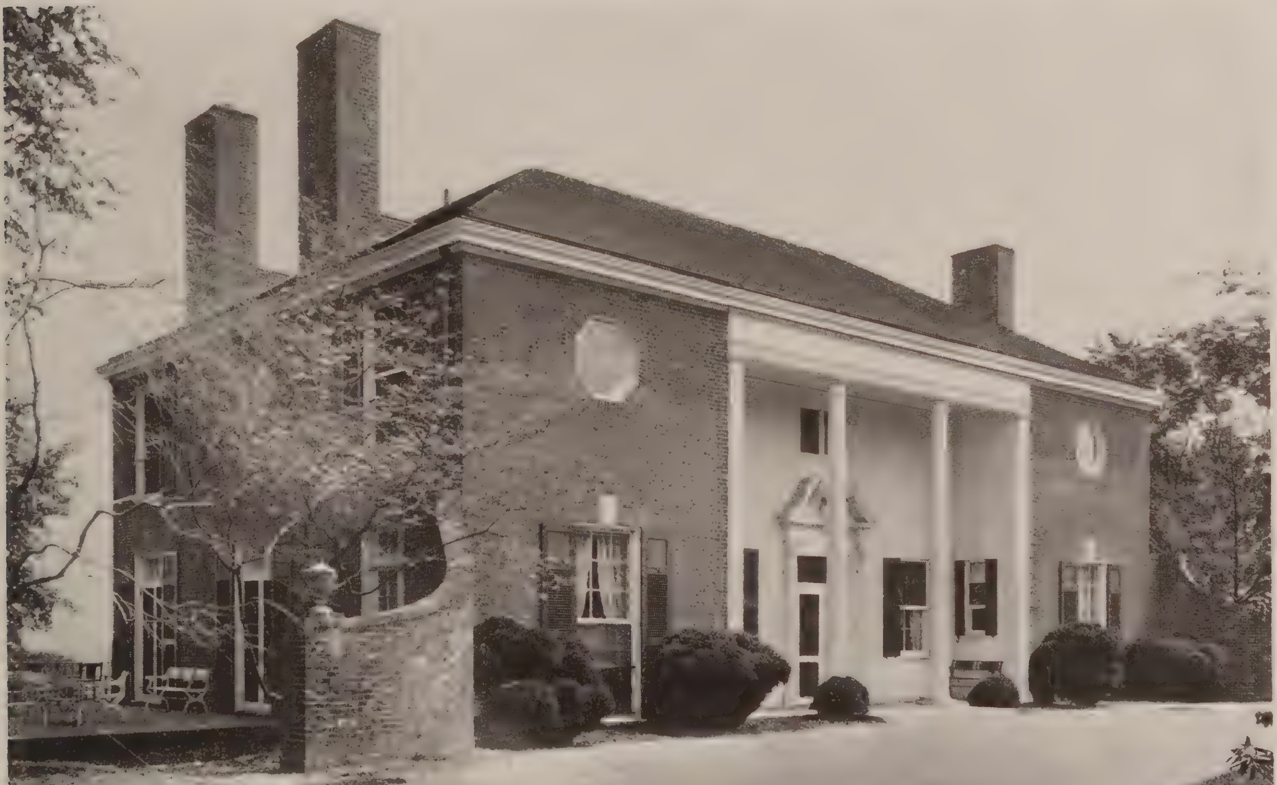
FIRST FLOOR

BONNIE BRIAR COUNTRY CLUB, LARCHMONT, N. Y.

TROWBRIDGE & LIVINGSTON, ARCHITECTS



"DORMIE" HOUSE



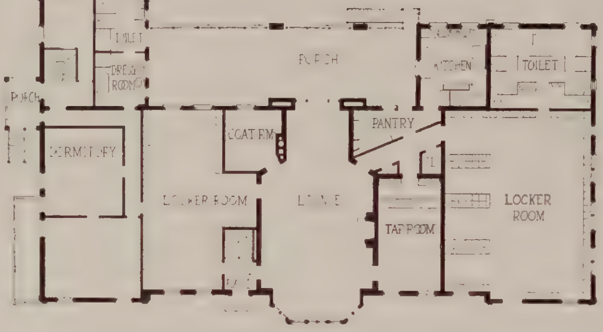
Photos. Mattie Edwards Hewitt

MAIN BUILDING

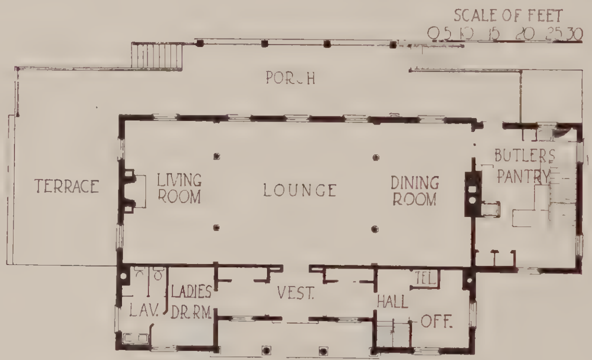
Plans on Back

CREEK CLUB, LOCUST VALLEY, N. Y.

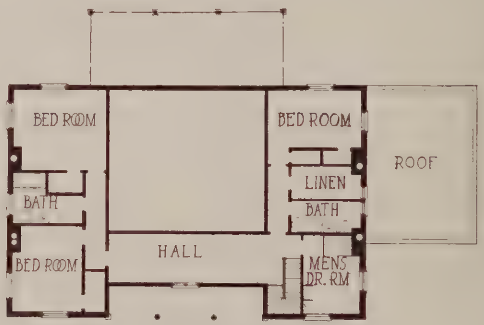
WALKER & GILLETTE, ARCHITECTS



FLOOR PLAN OF "DORMIE" HOUSE



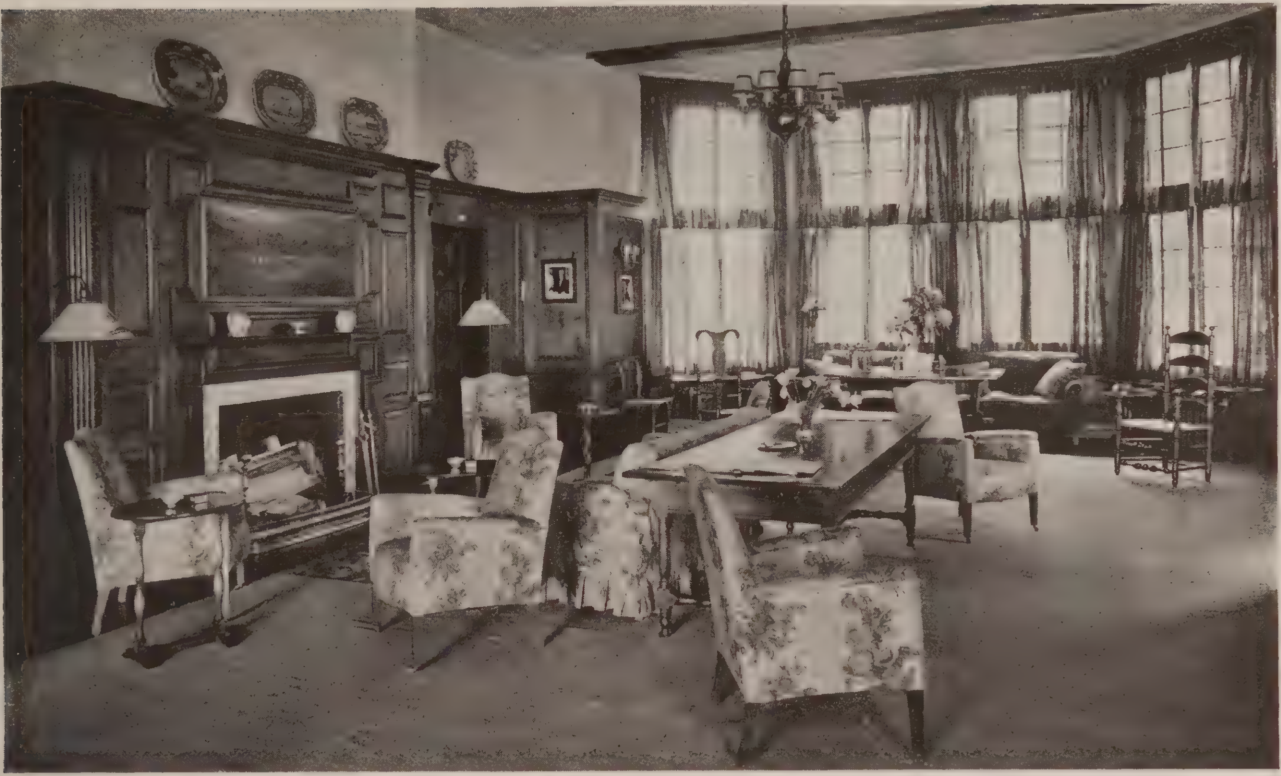
MAIN FLOOR



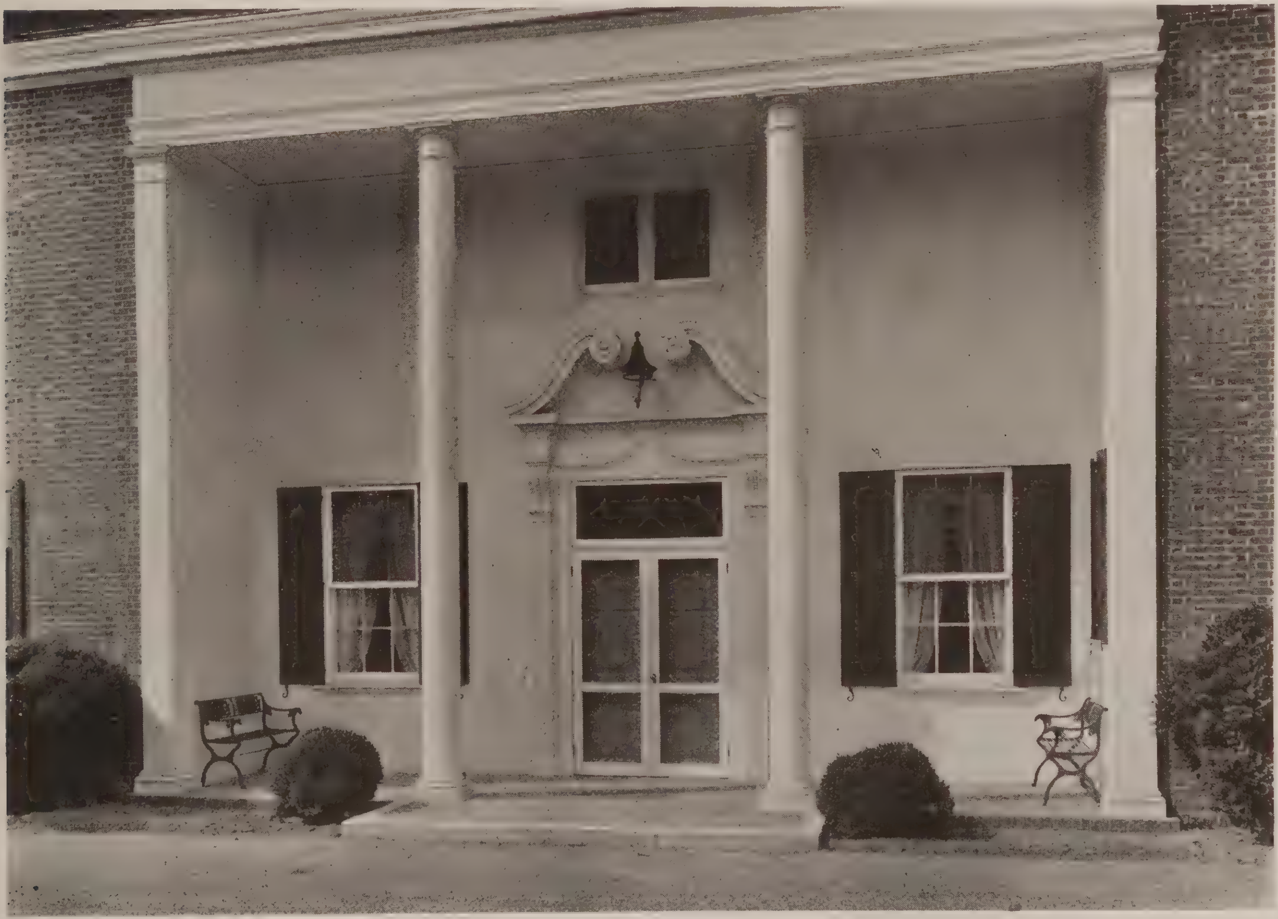
SECOND FLOOR

CREEK CLUB, LOCUST VALLEY, N. Y.

WALKER & GILLETTE, ARCHITECTS



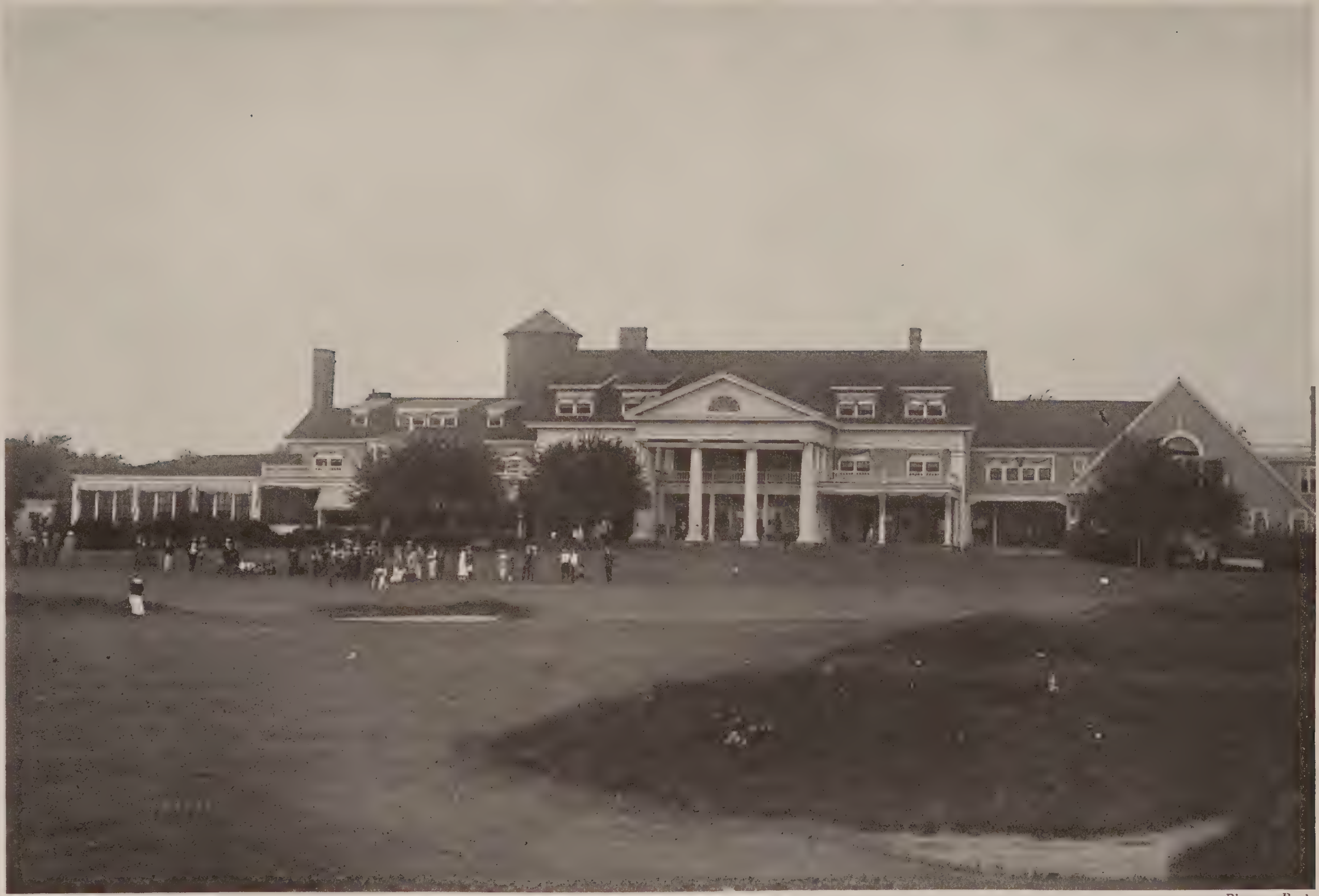
LOUNGE IN "DORMIE" HOUSE



ENTRANCE DETAIL

CREEK CLUB, LOCUST VALLEY, N. Y.

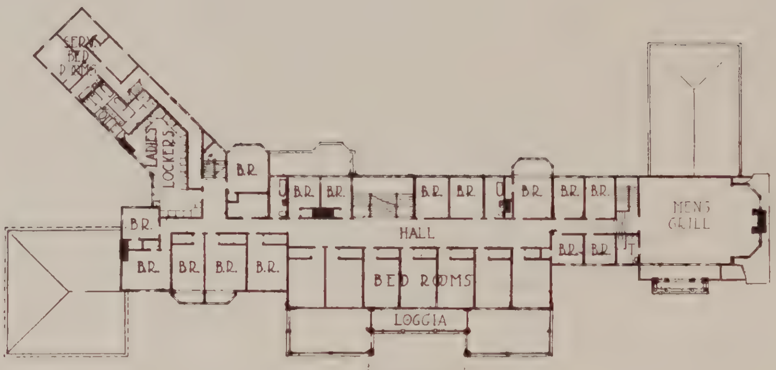
WALKER & GILLETTE, ARCHITECTS



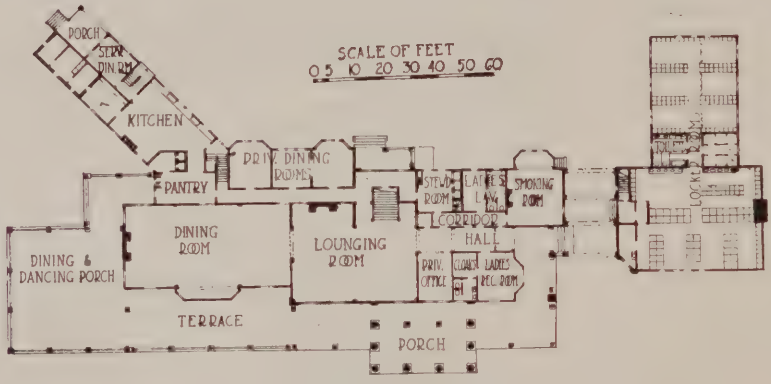
Photos. Levick

Plans on Back

MIDLOTHIAN COUNTRY CLUB, CHICAGO
FROST & GRANGER, ARCHITECTS



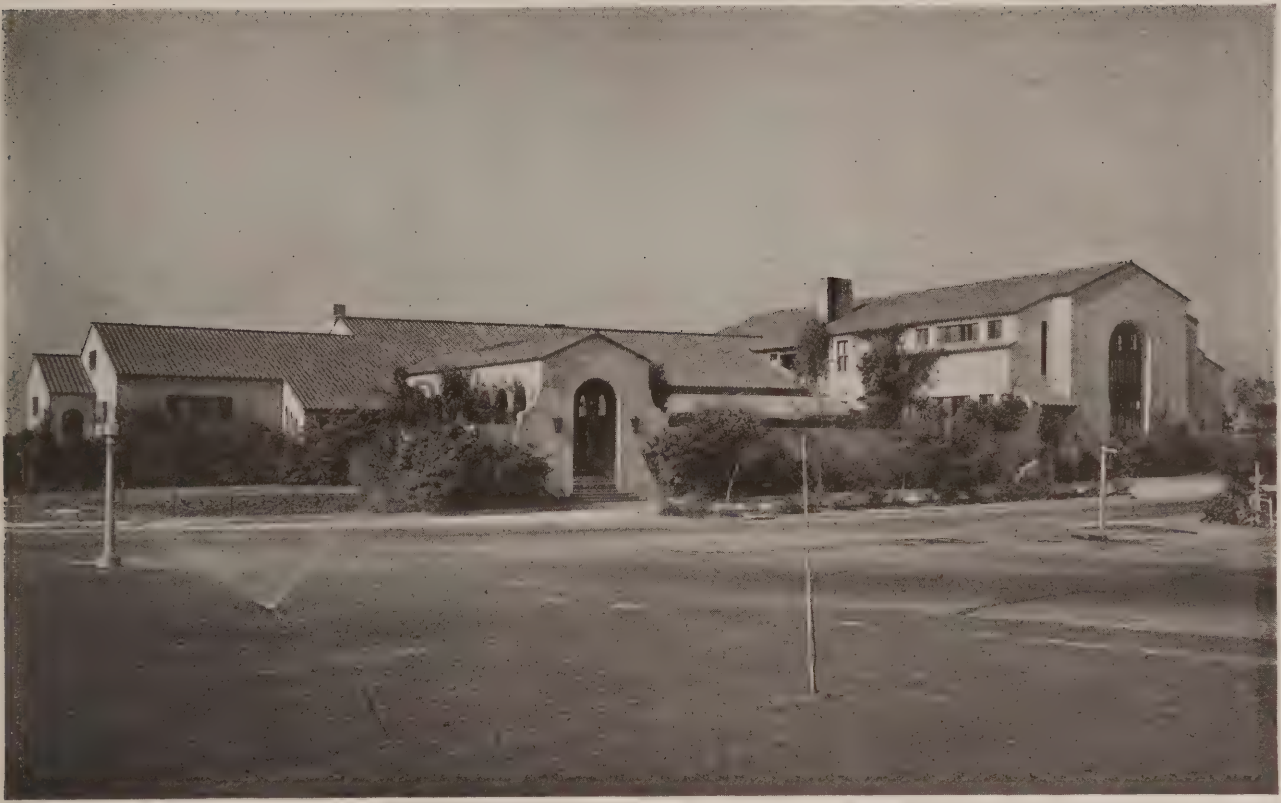
SECOND FLOOR



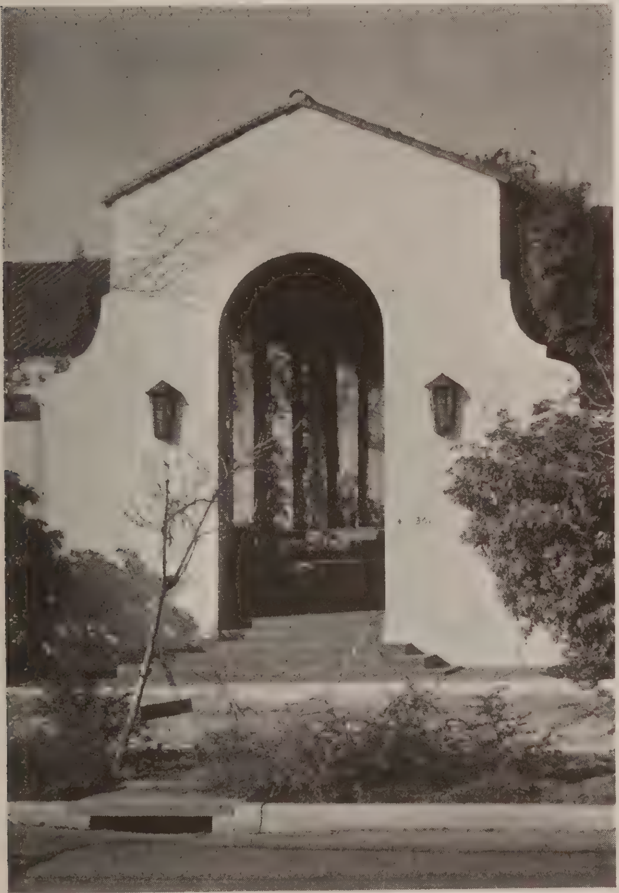
FIRST FLOOR

MIDLOTHIAN COUNTRY CLUB, CHICAGO

FROST & GRANGER, ARCHITECTS

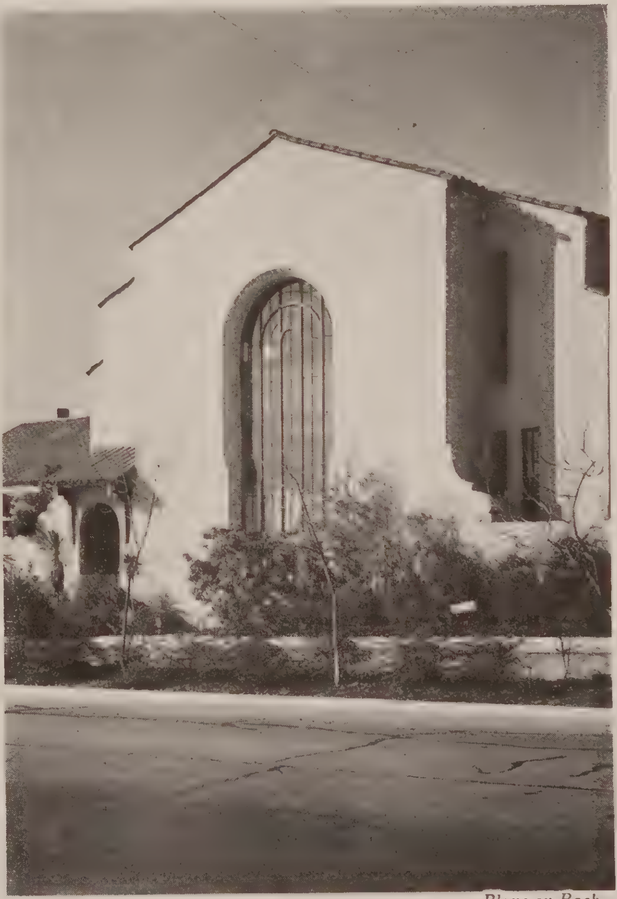


GENERAL VIEW



Photos. Mott Studios

DETAIL OF ENTRANCE

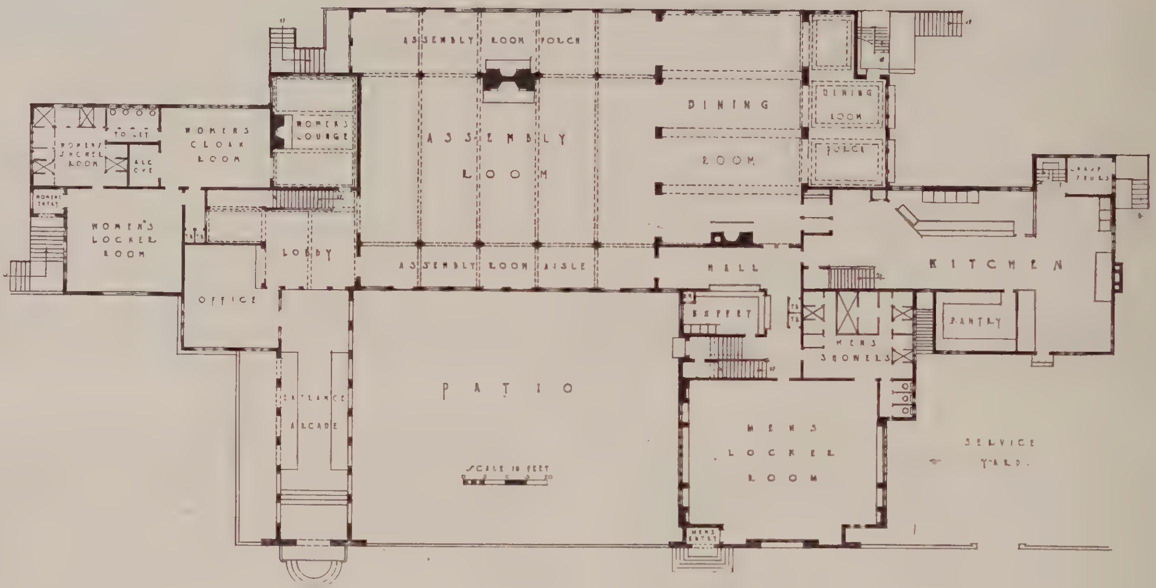


Plans on Back

LOCKER ROOM WINDOW

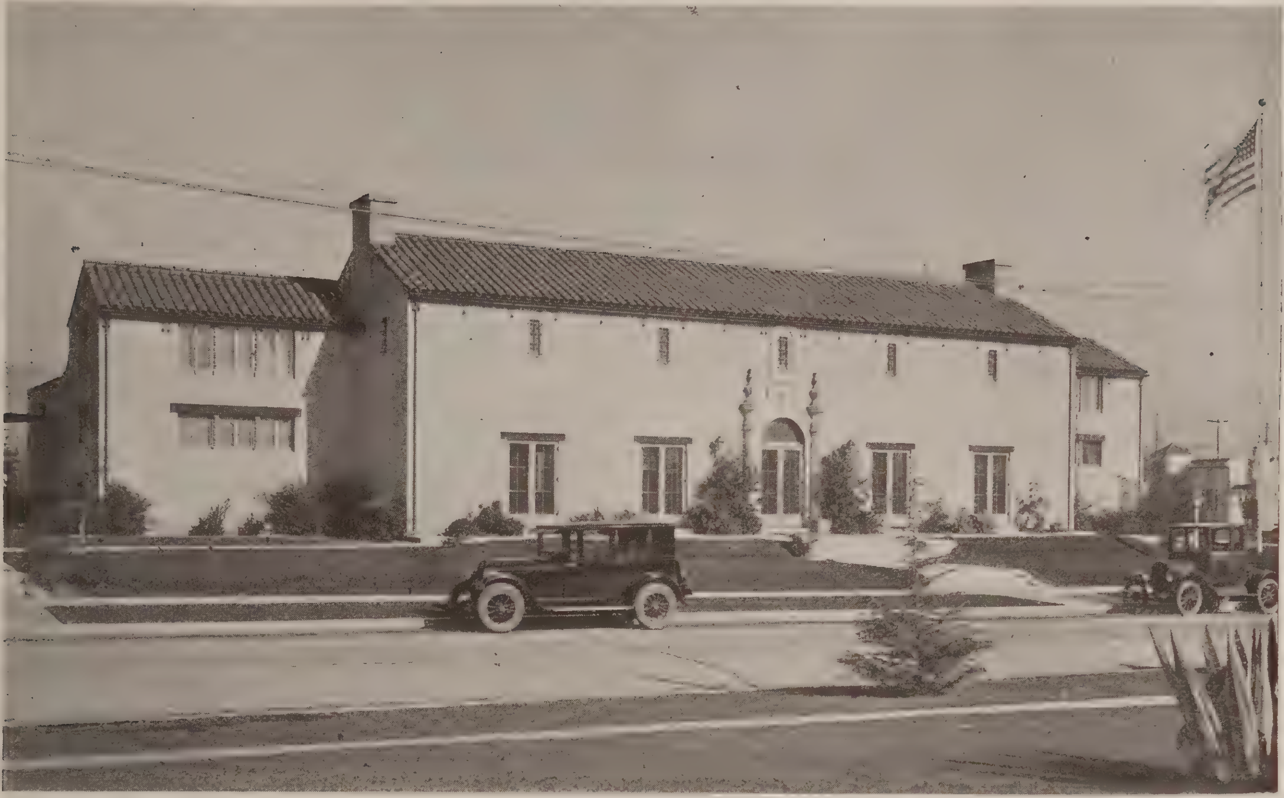
WILSHIRE COUNTRY CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS

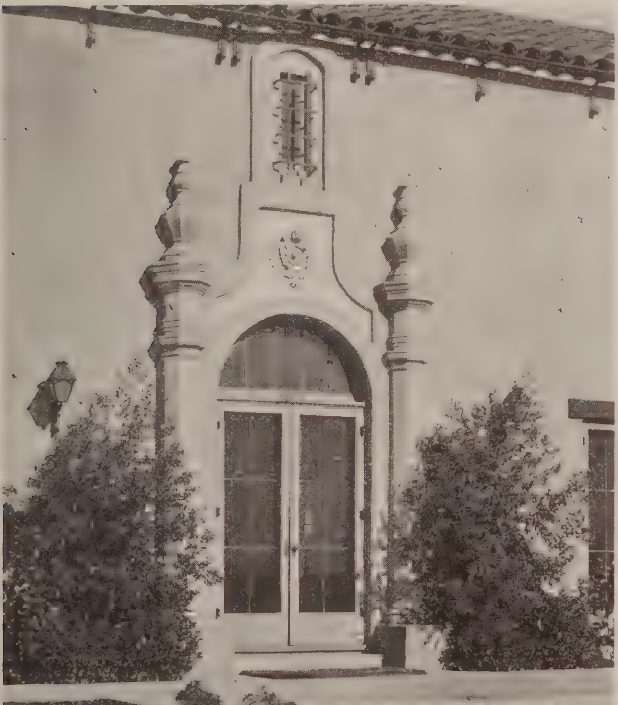


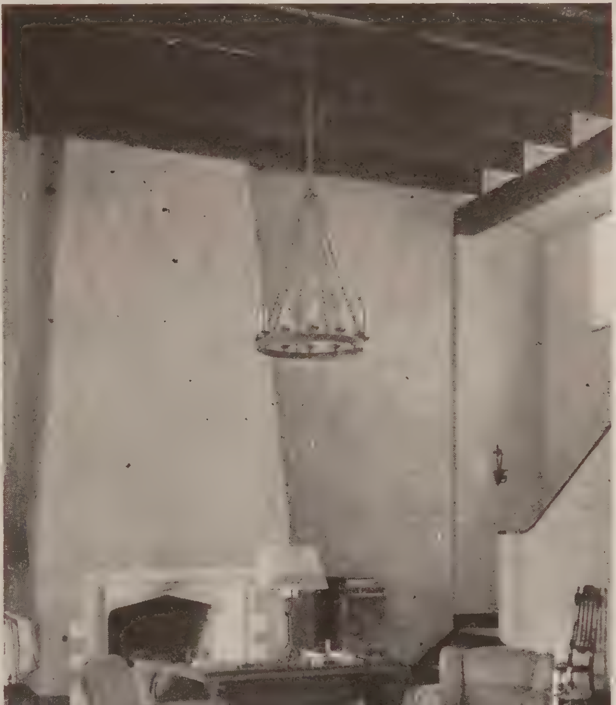
WILSHIRE COUNTRY CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS



FRONT ELEVATION





Photos. Mott Studios

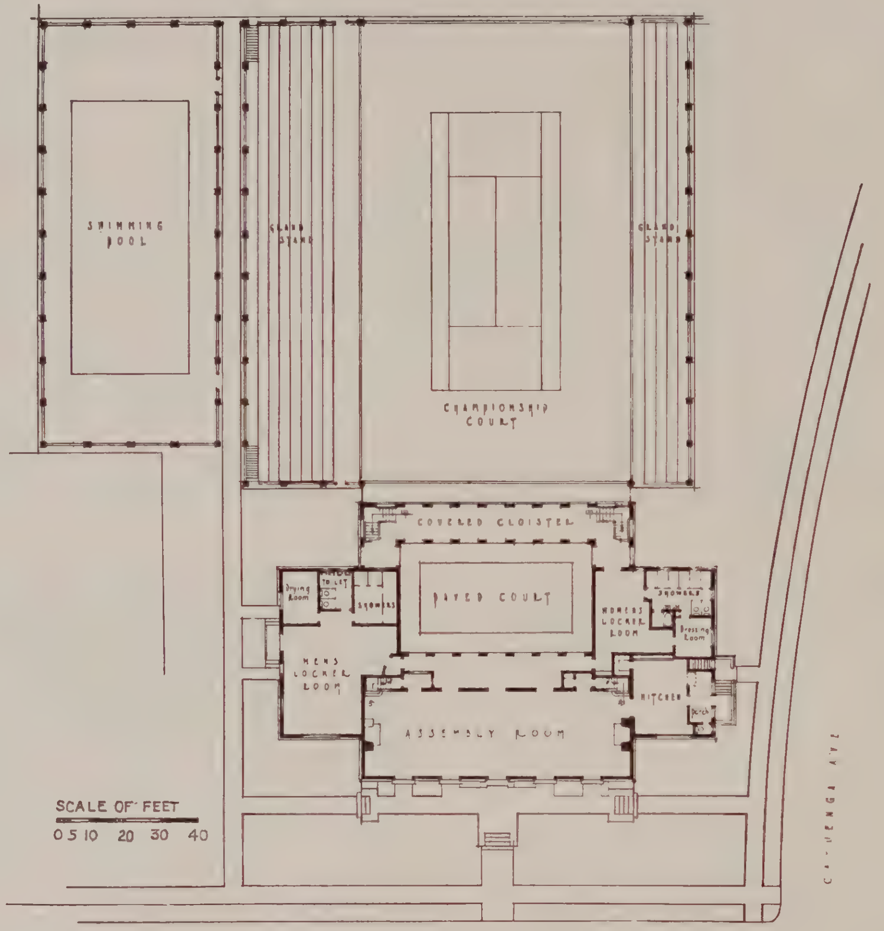
ENTRANCE DETAIL

END OF ASSEMBLY ROOM

Plans on Back

LOS ANGELES TENNIS CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS



LOS ANGELES TENNIS CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS

The Small Country Club

ITS REQUIREMENTS AND PLAN

By AYMAR EMBURY, II, *Architect, New York*

THIRTY years ago the country club was a little building with a few wooden lockers where the baseball teams and tennis players could keep their clothes in summer, and with a stove where skaters could warm themselves in winter. At that time there was probably no club house in the United States that cost as much as $10,000, and while there were perhaps a few which had some sort of cooking arrangements, there was certainly none which had any bedrooms for its members. Today the country club house has grown to be a very important,—a seemingly indispensable feature,—of the life of the time; the small city which has no country club is no longer to be found; the suburban towns frequently boast of three or four; the little isolated villages of a few thousand people feel that a country club is a necessity as a community center and a place for entertaining, and even the summer and winter resorts, where there are few cottages and where practically all visitors are housed in hotels, build country clubs at the golf courses or on the beaches.

It will be readily seen, then, that there can be no standard type of house, because there is no standard set of requirements. We do not find a large building and a small containing the same features in a greater or less degree, but rather that there is a wide variety in the features included in buildings of the same size. Even if we except from consideration specialized clubs, designed to cater to but one form of sport, as for example, shooting clubs, fishing clubs and the like, we find a wide divergence in the apparent aims of the clubs, and in the relative amounts of space devoted to these activities. However, there are certain features which are common to all types of buildings, large or small, and they form a main stem from which the others branch out. Fundamentally, a club of any kind is intended to provide its members through mutual support and congenial associates with what most of them could not afford individually; and the country club was devised to provide opportunities for outdoor sport. The first essential of the club, then, is adequate facilities for outdoor recreation, including some or all of the popular sports of golf, tennis, bowls, croquet, baseball, football, polo, swimming, sailing, skating and trapshooting. Since practically all of these require special clothing, locker rooms and showers are of primary importance, and no club house in which these are not adequately lighted, spacious, well ventilated and convenient of access can be called successful. Too often in the earlier club houses the locker rooms were obviously an afterthought, perhaps located in the cellar, where the room was not wanted for something else, and with little regard for proper ventilation. The locker room should be so placed that it may be reached directly from the main entrance, with an exit leading to the tennis courts or the first tee without having to pass through other rooms, and in such proximity to the kitchen that direct service from the kitchen or pantry is possible. These requirements create a problem which is difficult, and often not properly solved. There comes to mind a very handsome club house, built at considerable expense by one of our leading architectural firms, in which it is necessary to go outside the club house to get to the men's locker room, to walk around the house to get to the first tee, and with the main lounge and the dining room between the locker room and the kitchen. The house committee was forced to install at one end of the locker room a small grill room, requiring double service, in order to remedy the last defect; there was no remedy for the other two.

Besides the locker room there is one requisite which is common to all clubs, and that is an opportunity for community social life. This may be only a small lounge with an oil stove in an alcove for tea making or it may be a series of lounge rooms, ball rooms and restaurants as complete as that of a large hotel,—but the principle remains the same. Before designing any club house, the relative importance of

Entrance Detail, Ottowa Country Club, Ottowa, Ill.
John Hannaford, Architect

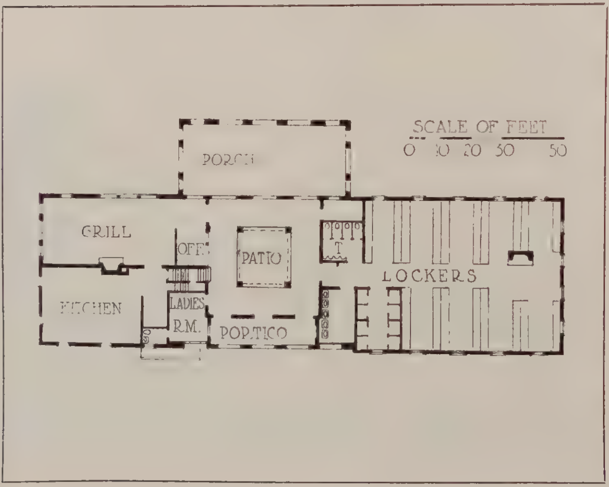
Palmetto Golf Club, Aiken, S. C.

Entrance Detail South Elevation

Old Elm Country Club, Fort Sheridan, Ill.
Marshall & Fox, Architects

the various rooms for public purposes must be carefully considered, and if restaurant service is part of the program, the type of meal to be served is of importance in determining the kitchen and dining room plan. Certain country clubs, as for example Inwood on Long Island, have a comparatively large proportion of the public area devoted to the dining room, and the space for lounge rooms is reduced to a minimum; this is reasonable, since the club is little used in winter, and in summer the lawns and terraces serve as lounge rooms; on the other hand, one rather smart country club in Westchester County has a very large lounge and a tiny dining room, buffet lunches only being served. These represent, of course, two entirely different solutions of the highly seasonal and occasional use of the country club dining room. The average hotel can count on a daily patronage which varies not over 10 per cent, but the weekday restaurant patrons of the country club will usually not exceed 30, while the Saturday or Sunday patronage will often run to over 300. Here is a real problem. It makes no difference how much money a club is willing to spend, it should be spent wisely. To provide facilities for the peak load and cause them to be used daily, means not only a heavy initial expenditure in building but an unreasonable maintenance cost. It must also be remembered that in many clubs members are permitted to give invitation dances or musicales, and as it is obviously unfair to exclude from the club, even for a time, those members not on the invited list, provision must be made to care for them comfortably in a part of the building while the rest is being used for a private affair. All this means that many features of the club house of small or medium size must be of dual purpose if true economy is to be consulted, and it may be well to consider the requirements in such a club together with their interrelations, before going further.

In the first place, there should be a single entrance to all parts of the house, instead of one entrance to the public rooms and another to the locker rooms; this simplifies door service and gives better "control" of the club. Near this there should be the main office for convenience in registering guests, obtaining guest tickets and the like. Where this is not the case, cashier service is duplicated, or a long walk from the locker rooms to the desk is necessary. Both



Plan, Old Elm Country Club

Entrance Court, Old Elm Country Club

The Lounge

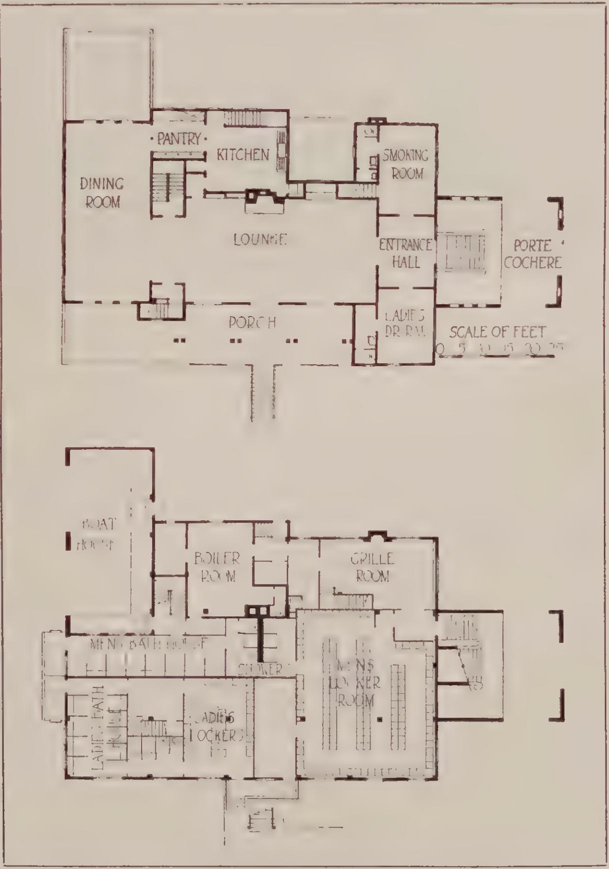
Entrance Front

Rod & Gun Club, Dennison, Tex.
Glyce & Rolfe, Architects

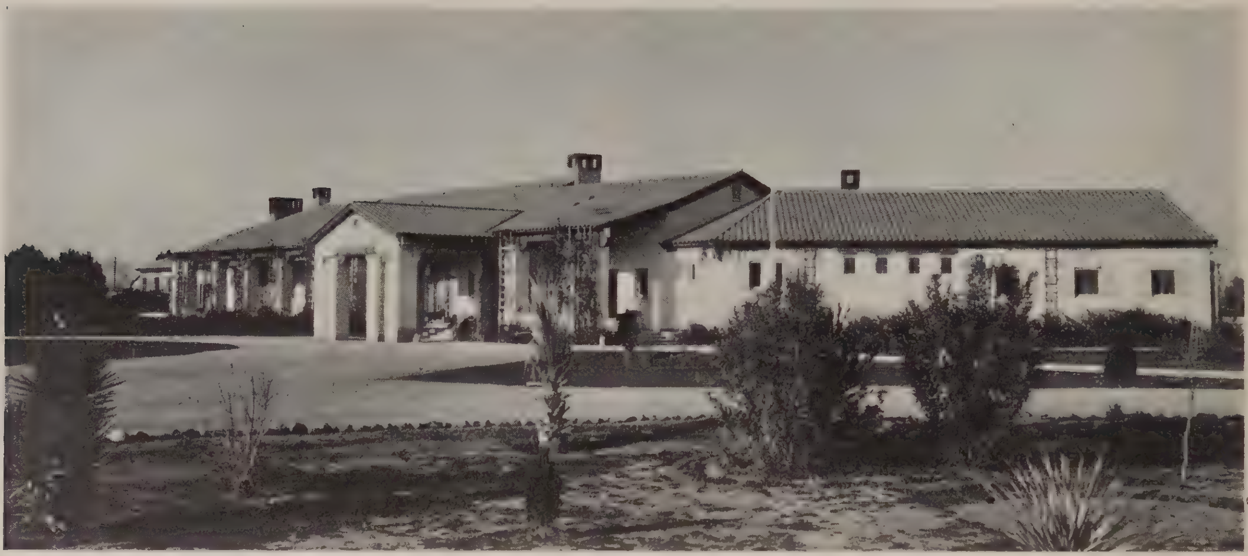
men's and women's lockers should be directly accessible from the main entrance without having to pass through the lounges or restaurant; this is especially useful when entertainments are given, since no additional cloak room attendants are necessary for the guests, and also since members of the club not guests at the entertainment may reach the lockers without passing through the main rooms.. It is very desirable to plan a women's reception room or tea room between the women's locker room and the hall to insure the privacy which such a room requires.

The restaurant is usually the club's most difficult problem; one scarcely knows how to seat adequately 150 or 200 people, not unusual at a dinner dance or a club dinner, in a room which will not seem large and empty during the times when it is little used. Probably a certain duplication of rooms is here necessary,—first a small grill room next to the men's locker room, where men can lunch or dine in sport clothes, and with a floor that spiked shoes will not damage; then a general dining room, which should be comparatively small and placed next to the general lounge in which additional tables may be set up, with service through the dining room. In the smaller clubs it may be expedient to combine the general dining room and the lounge, separating the dining space by light screens, so that the entire room can be used either for club dinners or for dances. Where the grill room and women's reception room are really comfortable, this is far from a bad scheme, and if there is in addition a card room, it is quite the best arrangement for clubs of moderate size. The grill room should be large enough so that when all tables are filled there is still space for men to sit

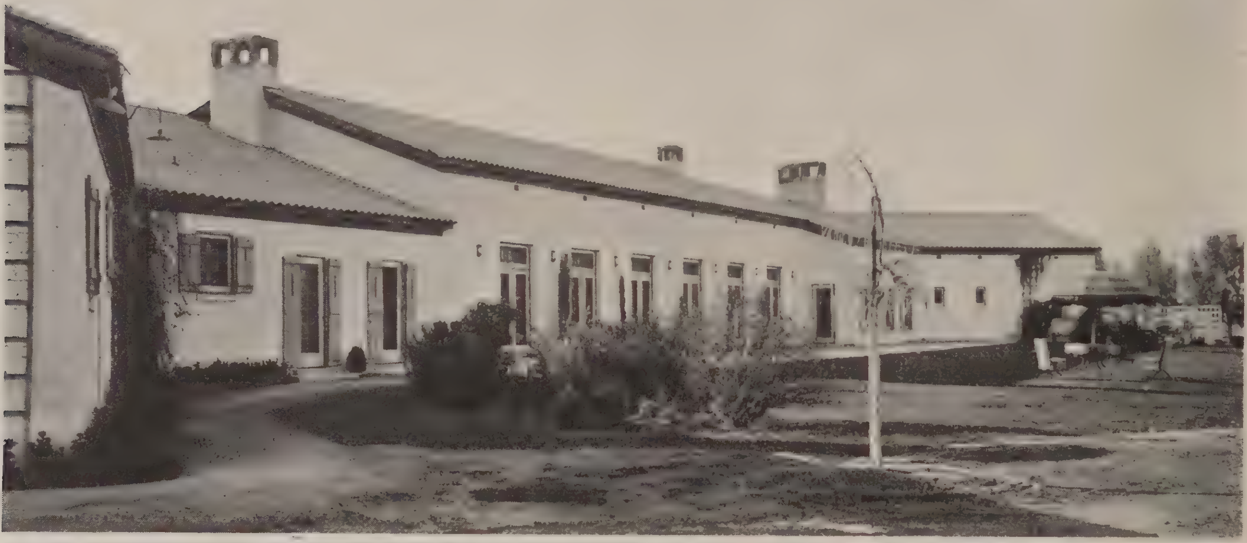
Mess Room, Rod & Gun Club



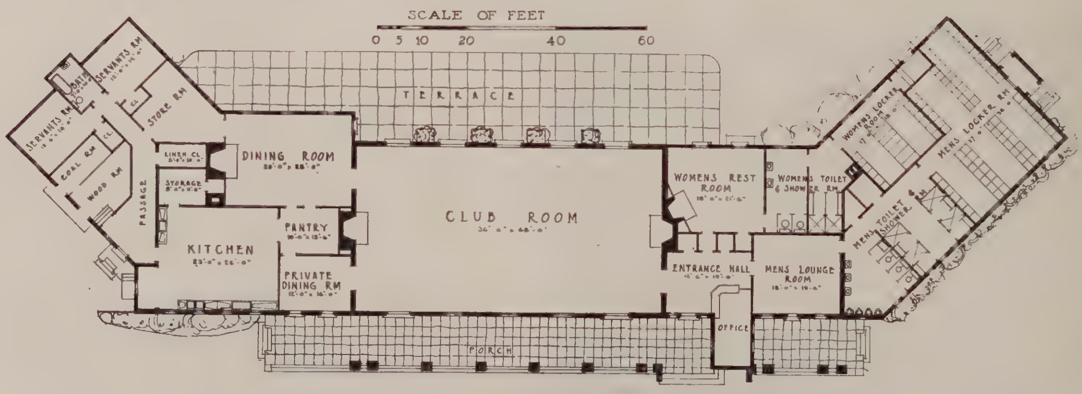
Plans, Rod & Gun Club



ENTRANCE FRONT

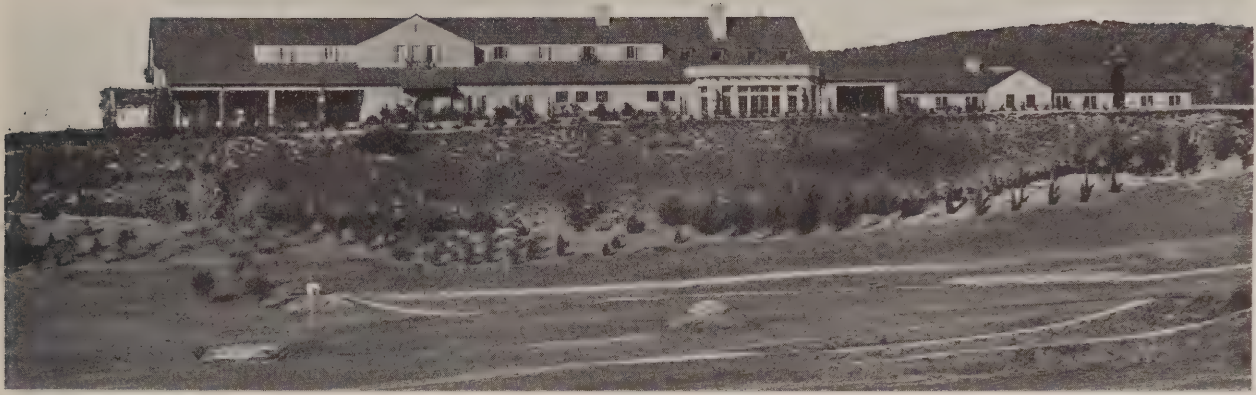


GARDEN FRONT

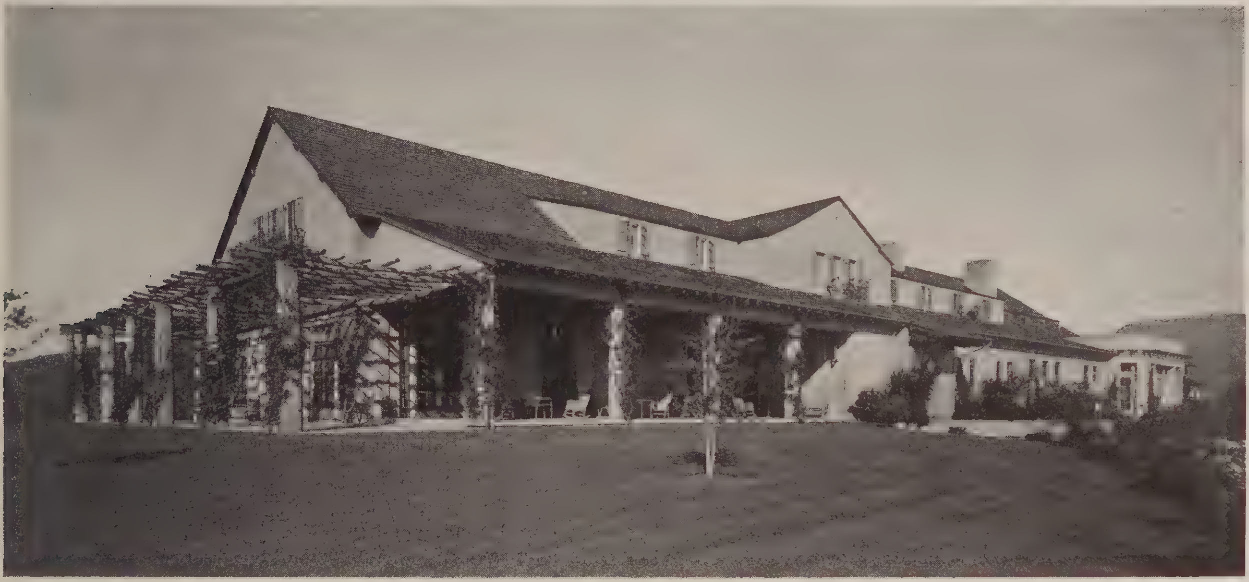


PLAN

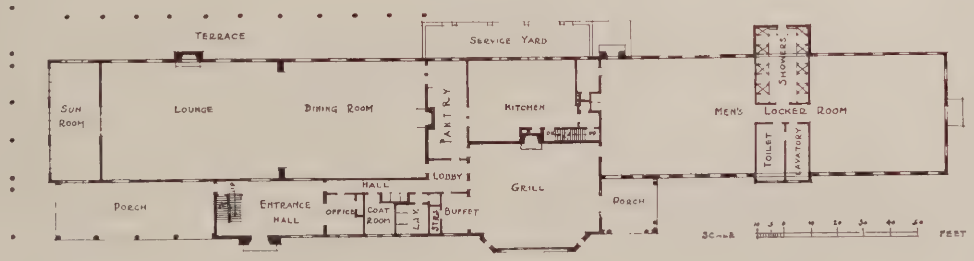
PHOENIX COUNTRY CLUB, PHOENIX, ARIZ.
LESCHER, KIBBEY & MAHONEY, ARCHITECTS



GENERAL VIEW FROM GOLF COURSE

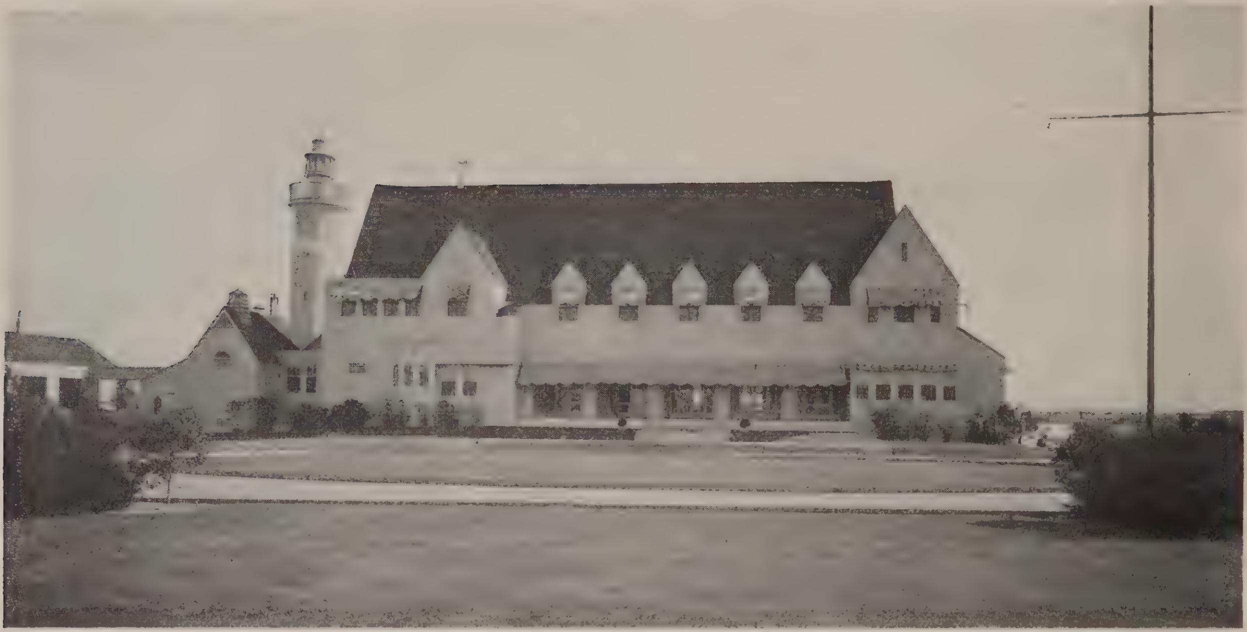


ENTRANCE FRONT



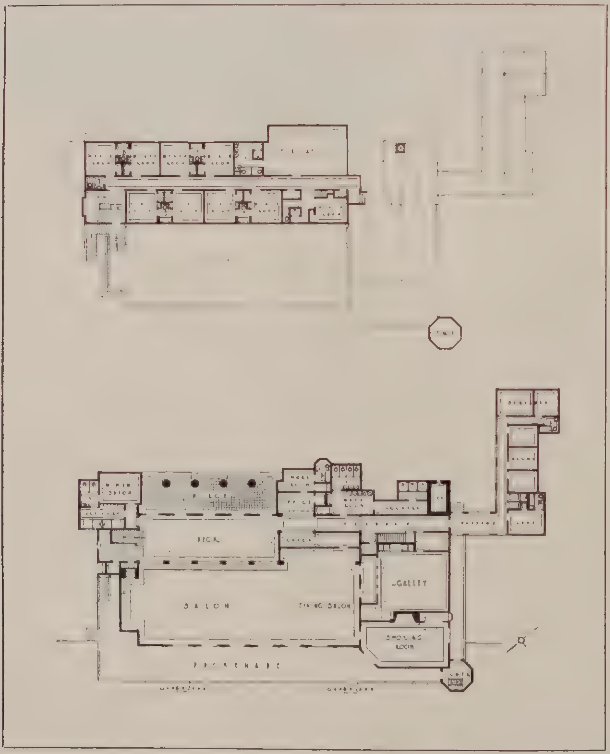
PLAN

ANNANDALE GOLF CLUB, ANNANDALE, CAL.
REGINALD D. JOHNSON, ARCHITECT



Entrance Front, California Yacht Club, Los Angeles
Edwin Bergstrom, Architect

around the fireplace for coffee after their meals; and if the house committee is wise, the use of the grill room will be increased by setting it up after meals for cards. This is especially true in a crowded golf club where starting times are given, since the players will come in for lunch not simultaneously but in rotation and will always have a little time to spare after lunch,—and a more pleasant place than the grill in a properly managed club is difficult to find.

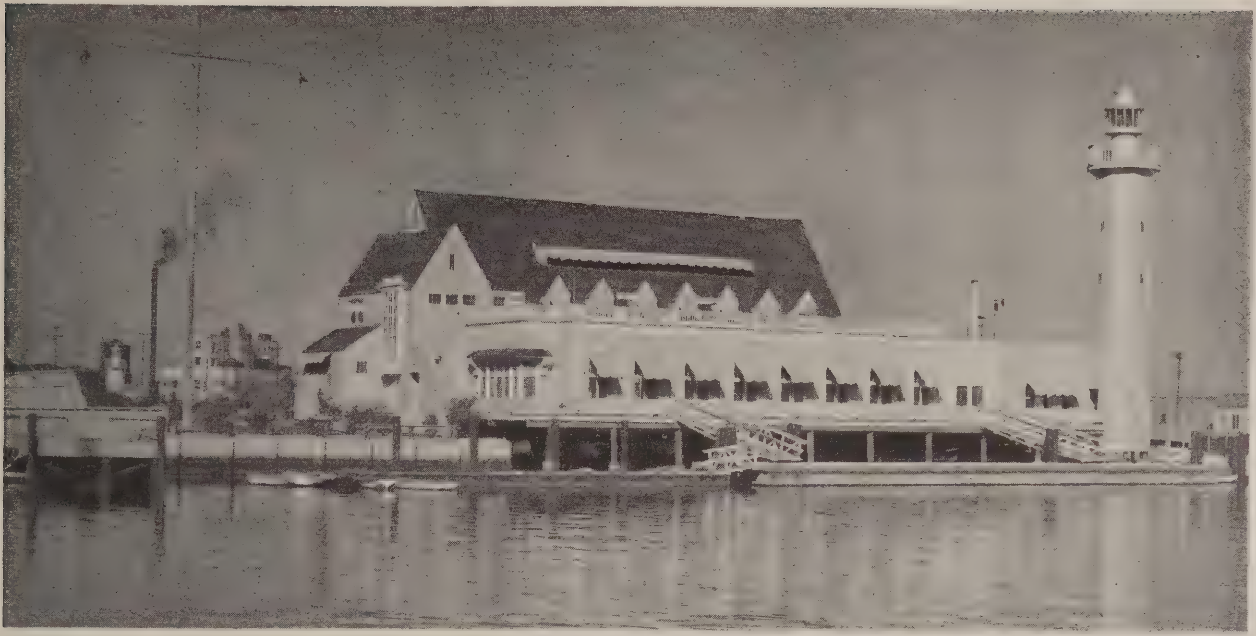


Plans, California Yacht Club

What has been spoken of here as the lounge may be either one living room or a series of rooms,—parlors, card rooms, reception rooms or the like; but there should always be one room of sufficient size for club meetings, club dinners or dances, which can be so furnished that small groups may be formed without either appearing snobbish or feeling lonely. This plan is much to be preferred to a series of smaller rooms, since man, and especially the country club man, is a gregarious animal, and will always fill one small room to overflowing while the rest are left vacant. This is the common experience in clubs.

If there are bedrooms, these also should be reached from the hall and not through the lounge. It very often happens that the men or women who spend the summer at the country club desire to be for some little while by themselves, and if they have to pass friends and acquaintances on the way to their rooms they are unavoidably drawn into groups they would rather not join. This sounds perhaps a little foolish, but it is just such things which make a club comfortable or the reverse. Another similar consideration is the placing of the men's locker room so that it will not be within either sight or hearing of the women members. Men are seldom careful while dressing, and often remarks made among themselves should not be overheard by those within earshot.

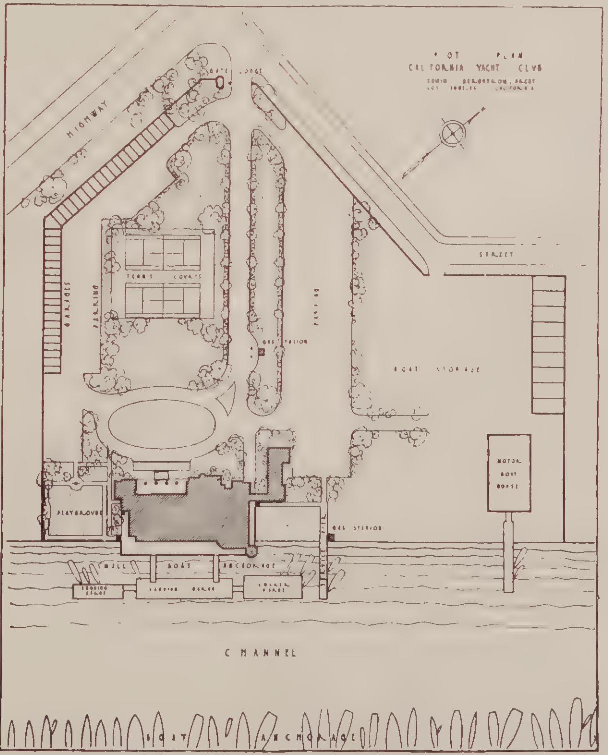
The kitchen must be so compact that a small staff can handle weekday business, while a larger number can work without crowding on Saturdays, Sundays and holidays. Perhaps the simplest solution of the uneven use problem is to serve only table d'hote meals on the crowded days and to give a la carte service on others. If the house committee is unwilling to accept this, there remains nothing to do but to equip the kitchen to take care of the peak load. In any case, the ice boxes and storage spaces will have



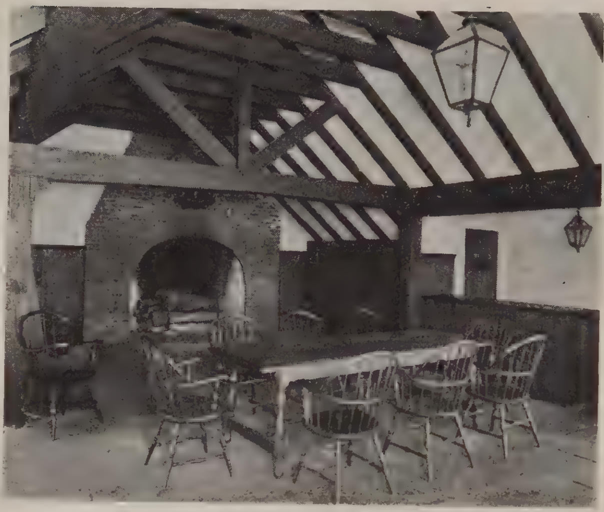
Harbor Front, California Yacht Club, Los Angeles
Edwin Bergstrom, Architect

to be larger than those necessary in a hotel with a kitchen of the same size, since the variety of food demanded of a country club exceeds that required of a small hotel; the sources of supply are often remote, and a large surplus of food supplies may have to be carried over from a rainy weekend. In one country club the steward says that he prepares for 600 meals every week end in the busy season, but when bad weather sets in he serves about 30. Another steward says that he always carries 50 meals in excess of his expected requirements; he can never tell when some one of the members will telephone out that he is having an office tournament, with a party of 20 or 30 men for luncheon and dinner to make heavy demands on the larder.

The interior of the country club is probably of more importance than that of any class of buildings except monuments, since the pride which the members feel in their building is directly reflected in the size of the membership and is a very vital factor in the success of the club. It is true that the best designed club house in the world will not compensate for bad food, indifferent service and poor golf greens and tennis courts, but that a handsome club house will jack up the committees in charge of these things is a fact which is also beyond doubt. The architectural style to be selected will naturally be governed by the same factors which affect the design of the country house, the most important being the surroundings and the historic style of the locality, if there be any. It is to be regretted that the enthusiasm of both our architects and our building committees often leads them to select styles which either have no local significance or which are distinctly unsuited to their settings. We have on Long Island, for example, country clubs done in our American Colonial style, the English cottage type, and according to Spanish and Italian precedents. While in the hands of a skillful designer any one of these styles may be made to appear reasonable, there should certainly be preserved the same relations between climate, topography and architecture which originally caused their development. One thing only can be stated as of general application; whether the house be of Spanish mission style in California or of Colonial style in New England, it should be easy,



Plot Plan, California Yacht Club



Grill Room, North Hempstead Country Club, Port Washington, N. Y.
Wesley Sherwood Bessell, Architect

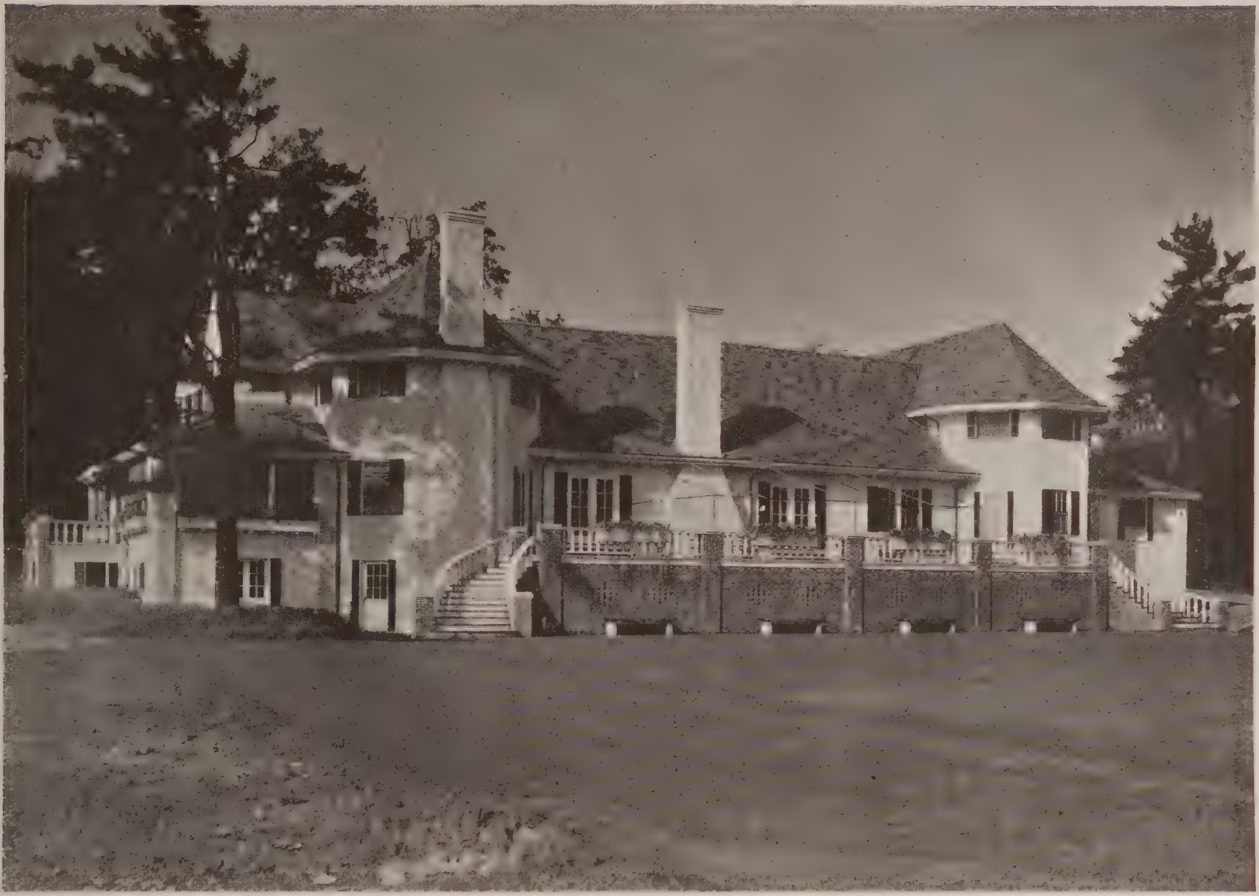
graceful and informal. It should spread out upon the ground rather than compel its surroundings stiffly to conform to it.

Likewise as to its materials. All are appropriate to the country club providing they will stand hard wear—and are appropriate to the design. We have perhaps a tendency to associate certain styles with certain materials, as for example stucco with Spanish and painted wood with Colonial. But it should be remembered that brick was as common in colonial America as it was in Italy, and that half-timber was hardly less common in France than it was in England. So with the roofs; any material is satisfactory for any type of house, except that one could hardly advise shingles save as a measure of economy, and that Colonial houses were rarely roofed with tile. We have too strong a tendency here in America to put our materials into compartments with our styles, forgetting that slate roofs and half-timber walls are not essential to English design, nor stucco and tile to Italian. It is not well to forget, however, that large, covered verandas in the north in summer and in Florida in winter are almost an essential, and these must often be screened; so in selecting a style it should be one which offers some freedom of treatment in this most important respect.

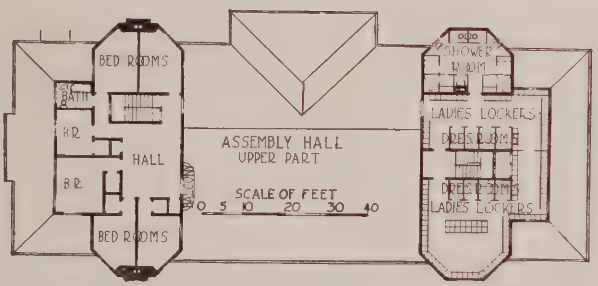
The veranda question brings to mind another rather important subject, that of orientation. In many country clubs this is fixed by some peculiarity of the site and means of access from the public road; but, as in all cases where golf is a principal feature of the sport, and in many where tennis is important, the porches, terraces or verandas ought to be so placed as to give them full views of the first and 18th holes and perhaps of the tennis courts; and if these verandas are to be genuinely useful they ought to be on the north or east sides. Nothing is less pleasant than to sit on a covered porch squinting at a golf course in light strongly reflected from the floor, and even the use of porches as outside dining rooms, has been made impossible in some club houses by the glare from the table linen. On the other hand, the lounge and the locker rooms should have southern and western sunlight where possible. If all the desirable requirements were met, the approach could only be by aëroplane, and this is not yet common.

The interior, both architecturally and in regard to furnishing, has too often been approached with the idea that the golf club is a small hotel and should be decorated and furnished like a hotel. Leaving out of consideration the question as to how a hotel should be furnished, there is no doubt that a club house is the temporary residence of a group of people who do or should constitute a single family, and the club house, must, therefore, be considered as if it were a residence. Furniture which is heavy in reality or appearance is out of place, for owing to the varied uses to which a club house is put it must often be moved. The atmosphere of the whole interior should be that of pleasant gaiety or, to use an often misused word, of gentility. In fact, the design of the successful country club, both exterior and interior, should express ease, comfort and well ordered gaiety. One recalls club houses which are plain, simply furnished and badly planned, but which are still splendidly successful, because somehow they convey the impression that well bred people enjoy themselves in comfort within their walls. Formality is to be avoided as carefully as jazz design; the lounge must look like neither the meeting room of the Peace Conference nor a night club on Broadway; and if the clubs illustrated in this number of The Forum are examined, it will be found that those which most attract are those possessing these qualities. All of these suggestions apply quite as much to small clubs as they do to large. The principles of successful club designing are the same.

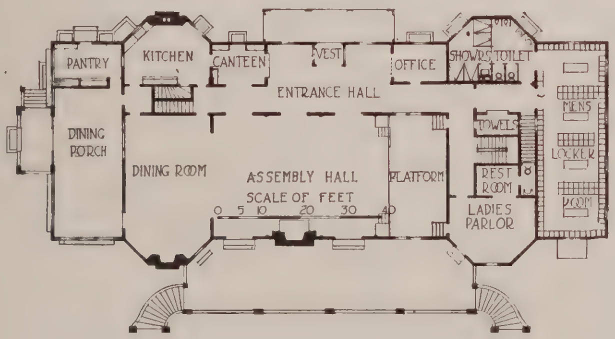
Editor's Note.—To mention only a few of the clubs used to illustrate Mr. Embury's article, in the selection of which an effort was made to find examples which would show how varied may be the styles of architecture successfully employed in the design of this type of building, the country club at Ottowa, Ill., illustrated at the bottom of page 169, shows the picturesque use of low, sloping roofs combined with stucco walls, which give an English effect to the design. There is a very pleasant, homelike atmosphere about this small country club which is always desirable in this type of building. The low story and a half golf club at Aiken, S. C., also shown at the bottom of page 169, possesses to a remarkable degree this quality of homelike informality, although it is designed in a simple adaptation of the Colonial style. In the Old Elm Country Club, at Ft. Sheridan, Ill., shown at the top of page 170, the design has been carried out with stucco walls and a tiled roof. No very noticeable attempt has been made to suggest Spanish or Italian architecture, although the low arches used at the entrance to the club house and for the large porch at the rear rather suggest the arcade motif so often found in the villas of Spain and Italy. The charm of this example of club architecture lies chiefly in the simplicity of the design and in the building's location amid beautiful lawns and fine old oak trees. The low, rambling appearance of the building possesses a certain interest seldom found in so simple and straightforward a design. Use of the covered interior court or patio, with its flagstone floor and box-edged geometrical flower beds, is a pleasant innovation.



LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS.
PUTNAM & COX, ARCHITECTS



Second Floor



First Floor

THIS attractive club house, which was originally designed for a neighborhood club, was altered to suit the requirements of the Longwood Cricket Club. The exterior of the building is modern English in design, combining, under a mottled slate roof, rough plaster walls and brick piers and terraces. Small panes and green blinds give a homelike atmosphere to the entire building. The entrance porch is surrounded with lattice work, which is an unusually pleasant departure from the more common use of square piers or columns for entrance porches. The building originally had a two-story portion containing men's and women's rooms, with an entrance and 12-foot hallway at the center leading to a one-story ell, in which was the assembly hall with a temporary stage. These two portions were cut apart and moved separately about 500 feet to the new location overlooking the tennis courts. When joined together, the assembly hall was brought about 8 feet forward

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 17

Longwood Cricket Club, Chestnut Hill, Mass., Putnam & Cox, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Rough stucco on wire lathing and hollow tile; copper leaders and gutters.

TRIM:
White pine.

ROOF:
Slate, sea green with 33 per cent of non-fading, mottled purple.

WINDOWS:
Wood, casement and double-hung, small lights.

FLOORS:
All floors are of birch.

HEATING:
Steam heat, exposed radiators. Service hot water heated by separate gas stove.

PLUMBING:
Enameled iron fixtures.

INTERIOR MILL WORK:
Birch throughout, painted.

STAIRS:
White pine with oak treads.

WALL FINISH (INTERIOR):
Scoured plaster, slightly tinted.

NUMBER OF MEMBERS:
700.

CUBIC CONTENTS OF BUILDING:
202,000 feet.

COST DATA

Actual cost per cubic foot, $.312 at time of completion, September, 1922.

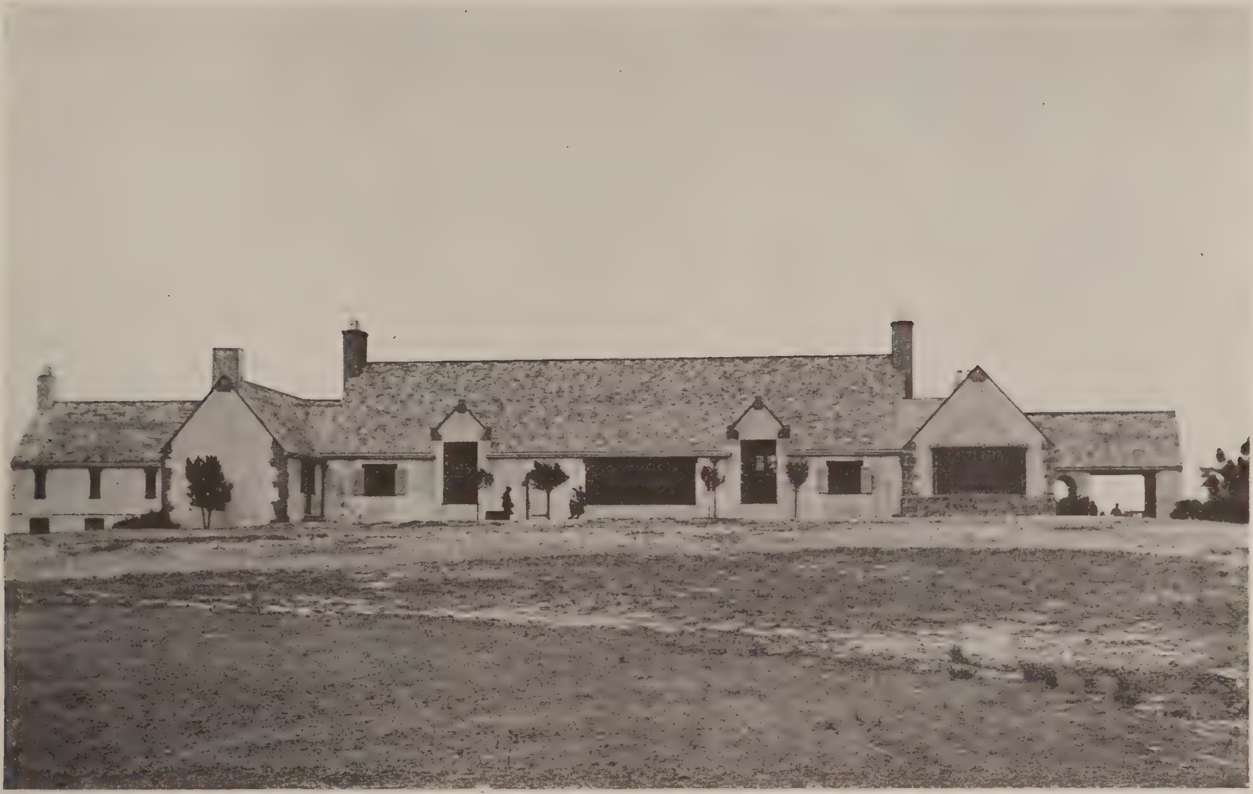
of its original central location in relation to the wing, so that its front wall coincided with the angle of the octagonal end of the two-story portion. This assembly hall became the new lounge. The dining room, which serves also as an extension to the lounge, was obtained by throwing together the women's parlor and the old entrance hall, and substituting for the partition a series of glazed folding doors.

The new entrance hall or foyer is located in the relative position of the old assembly room. The five pairs of windows are changed into five pairs of French doors, three of which connect the foyer with the assembly hall, while the other two open on the terrace. The dining porch is the old piazza glazed in. A new permanent stage is provided. The two-story portion, which was added at that end of the building to balance the design, contains a women's parlor, rest room, etc., and two men's locker rooms.

The original structure was shingled, but because of building restrictions covering halls of public assembly, all outside walls of the new portion had to be fireproof. Hollow tile was therefore chosen, which gave an opportunity to plaster the outside. This was done over the shingles on the old parts. The foundations and all floors of the basement are of concrete, the terrace walls of brick, and the roof is of sea green slate with about 33 per cent of the non-fading, mottled, purple slate added. The outside plaster was put on in a manner to suggest plaster over stonework. The inside trim is painted white.

Entrance Porch

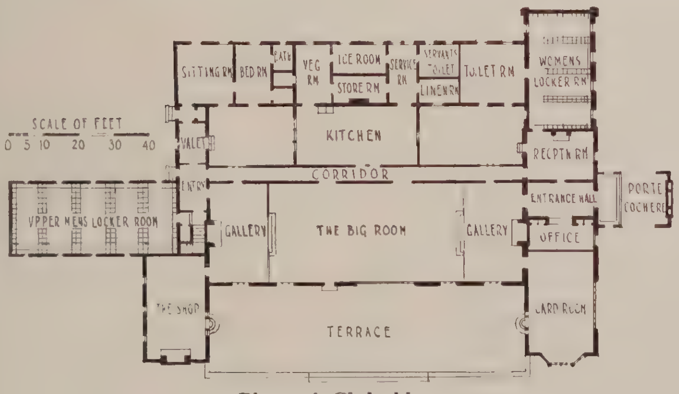
Living Room



SOUTHERN PINES COUNTRY CLUB, SOUTHERN PINES, N. C.
AYMAR EMBURY, II, ARCHITECT

THIS attractive small club house is intended primarily for the winter use of northern people who desire to spend part or all of the winter in the south. It is designed principally for the use of both hotel guests and cottage tenants in Pinehurst and Southern Pines. This club is called the Southern Pines Country Club, but in reality it is chiefly a golf club, although it is possible to have meals served in the "Big Room," a combination living and dining room.

The exterior design shows a long, low building with broken roof lines and low projecting wings, carried out in a simple adaptation of modern English architecture, in which stucco has been used with brick and stone details. The principal facade, which overlooks the golf course, has an open terrace bounded on the ends by the projections of the wings of the building and on the back by the main part in which the "Big Room" is located. Two tall gables with high casement windows accentuate and break the long roof line of this principal elevation, which plainly indicates the plan of the building. The importance of that part of the building in which the "Big Room" is located is further accentuated by the additional height of this roof and large end chimneys, which give emphasis to this main part of the design. The exterior possesses dignity and character.



Plan of Club House

The plan shows a logical, well balanced and convenient arrangement of the various rooms of the building. The "Big Room" dominates the center of the plan, as it should, with a good sized kitchen directly back of it, from which it is separated by a long corridor. This corridor connects the entrance wing of the building with the men's locker room wing at the opposite end. In the entrance wing are located a large card room and office on the left of the entrance hall, with reception room and women's locker room on the right. In the men's wing are located the two-story locker room and also the professionals' shop.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 18

Southern Pines Country Club, Southern Pines, N. C.; Aymar Embury, II, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on terra cotta blocks; brick and stone trimmings.

EXTERIOR TRIM:
White wood, painted.

ROOF:
Shingles, stained.

WINDOWS:
Steel casements.

FLOORS:
Pine.

HEATING:
Steam, exposed radiators. Service hot water heated by separate coal-burning stove.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting, and service for refrigerator and dish-washing machinery.

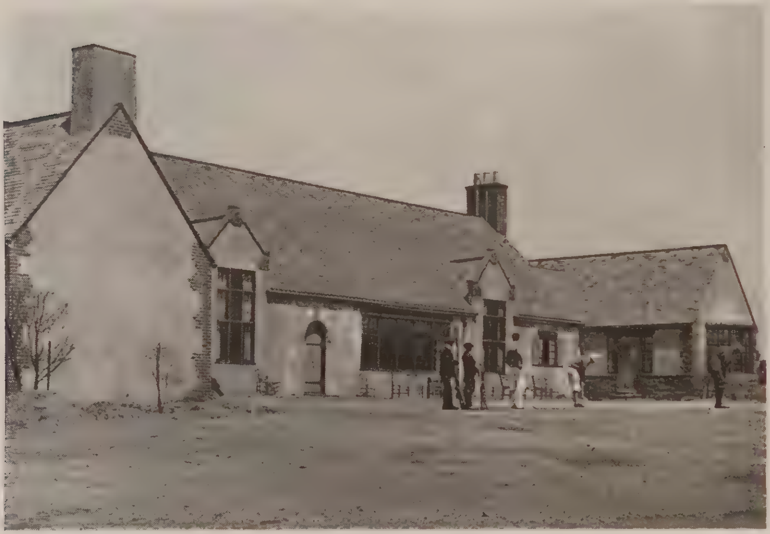
INTERIOR MILL WORK:
Cypress, stained.

INTERIOR WALL FINISH:
Three-coat plaster; rough finish throughout.

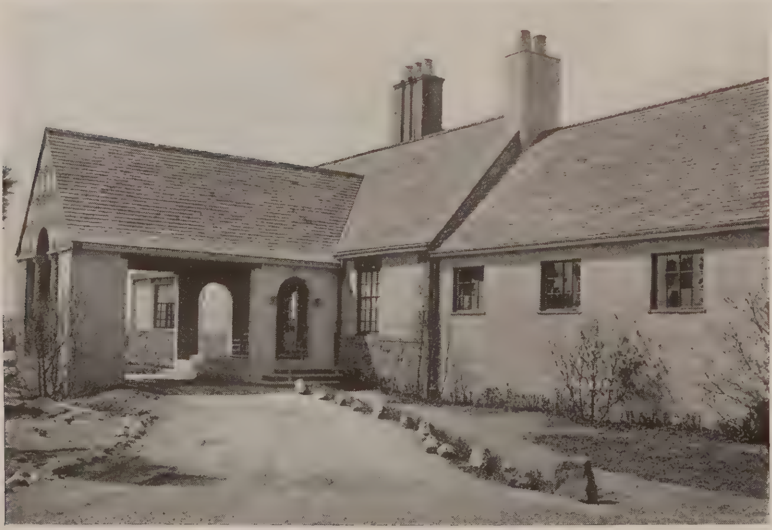
NUMBER OF MEMBERS:
250.

COST DATA

Approximate cubic footage of building, 124,000, at a cost of 23 cents per foot in year of completion, 1924.



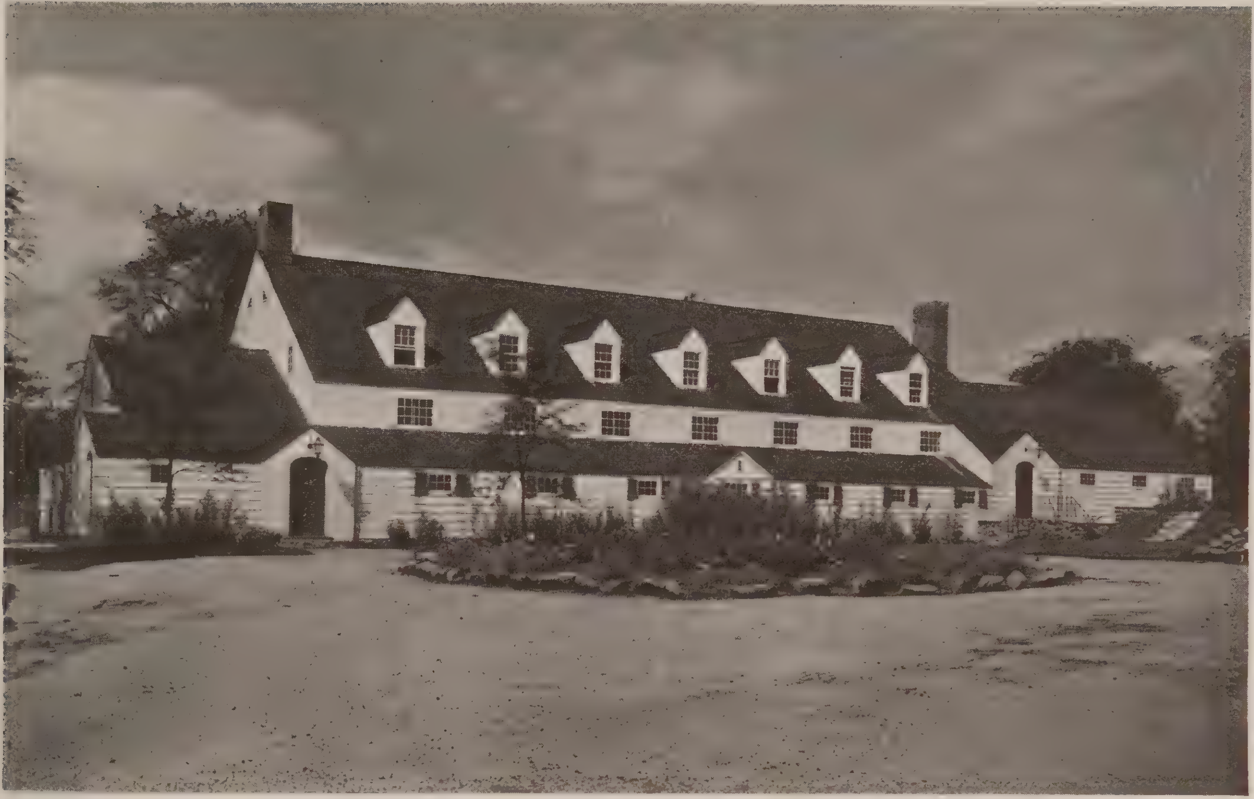
Terrace Front, Overlooking the Golf Course



Detail of Entrance Front

On the basement or first floor level of the locker room are located the men's showers and toilet rooms. Back of the kitchen are the various necessary service rooms for the preparation and storage of food, the linen room, servants' living rooms and toilets. Adjacent to the servants' toilets are the large dressing and toilet rooms connecting with the women's bathroom, so located that all of the plumbing lines in this section of the building are in one place. A servants' entrance at the rear furnishes access to this part of the building. A feature of the plan of this club, which should be carried out as far as possible in all club plans, is the complete separation of, and distance between the men's and women's locker rooms.

The "Big Room," the dominant feature of the club, is 30 x 90 feet in dimensions; it has a low gallery or platform at each end. This arrangement permits the use of this room for theatricals and dances. When used for theatricals, one platform or gallery may be used as a stage and the rest of the large room as an auditorium. When used for dances, comfortable chairs and sofas on each of these galleries give an opportunity for rest and observation for those who are not dancing. Another interesting feature of this plan is the introduction of two light courts on either side of the kitchen and between the long corridor and the service section of the building. A more compact, convenient and well balanced club house plan is rarely seen.



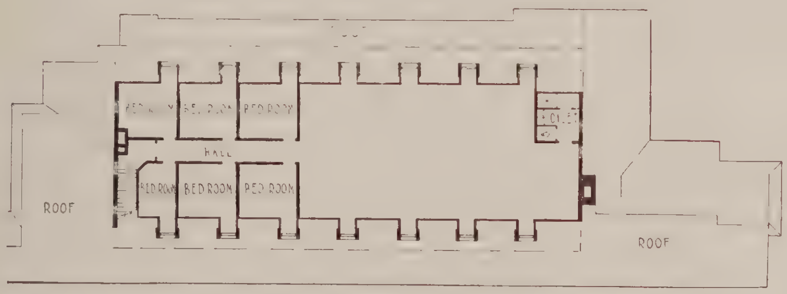
LOCKER BUILDING, NORTH HEMPSTEAD COUNTRY CLUB, PORT WASHINGTON, N. Y.
WESLEY SHERWOOD BESSELL, ARCHITECT, NEW YORK

THIS long, low country club building is interesting and attractive, not only because of the excellence of its plan, but because of the quiet simplicity and dignified severity of its design.

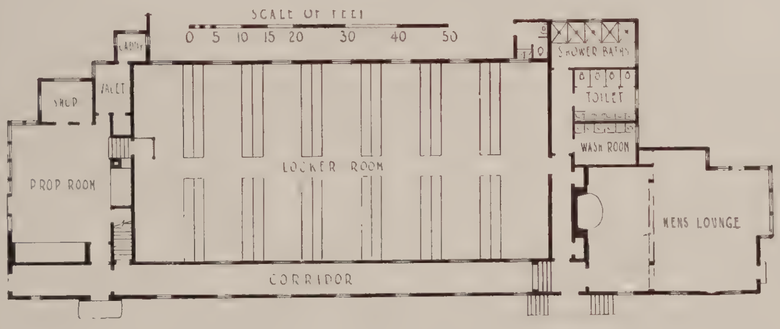
The use of shingles and clapboards painted white, together with the stained shingled roofs, gives an old fashioned appearance, such as one might expect to find in a country tavern of a century ago. The exterior design perfectly interprets and indicates the interior plan, which is always considered the best form of architectural expression. The long main building, two and a half stories high, with lower wings at either end, has a low one-story shed across the entire front, which encloses the corridor connecting the professionals' shop with the men's lounge. This shed-like treatment of the corridor creates a pleasant break in the front elevation, giving added emphasis to the predominating horizontal lines of the design. A slight rise in the grade makes it possible to locate the men's lounge and shower rooms on a slightly higher level than the rest of the building. The use of two doorways, of similar size and design, one at either end of the long corridor shed, helps to tie together the design.

The principal feature of the plan is the large, high studded

(Outline Specifications on Next Page)



Second Floor



First Floor

FORUM SPECIFICATION AND DATA SHEET — 19

Locker Building, North Hempstead Country Club, Port Washington, N. Y.; Wesley Sherwood Bessell, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Wood frame, shingles and clapboards.

TRIM:
White pine, painted.

ROOF:
Shingles, stained.

WINDOWS:
Wood frames and sash.

FLOORS:
Pine.

HEATING:
Steam, exposed radiators. Service hot water heated by separate coal-burning stove.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine.

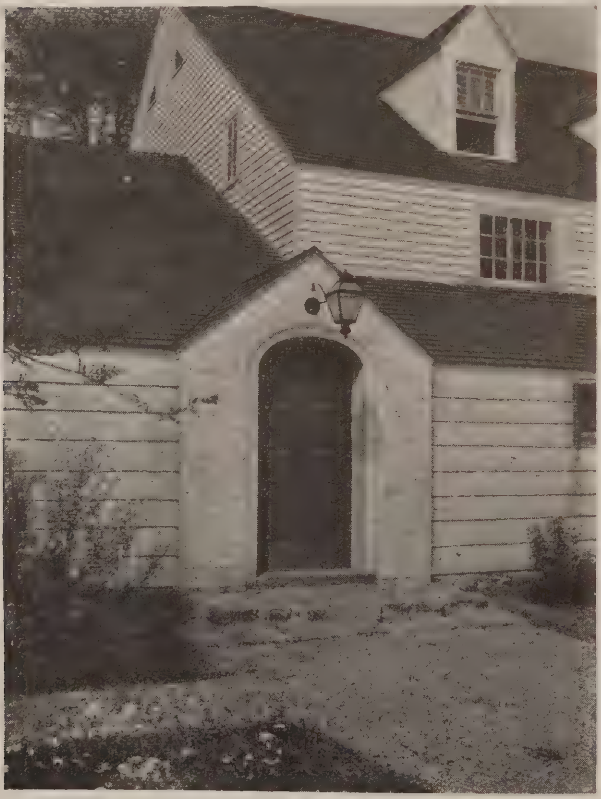
INTERIOR WALL FINISH:
Plaster board.

NUMBER OF MEMBERS:
250.

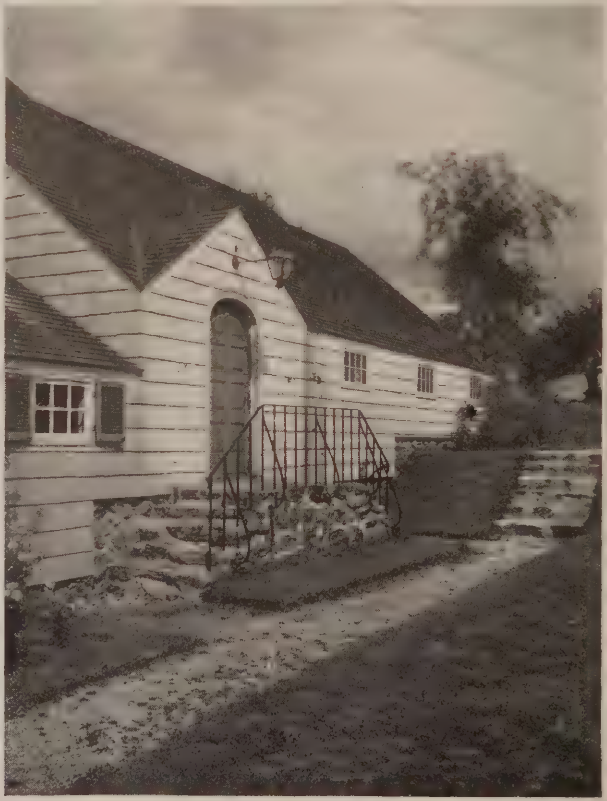
COST DATA

Total cost, approximately $33,000, at 25 cents per cubic foot, in the year of completion, 1923.

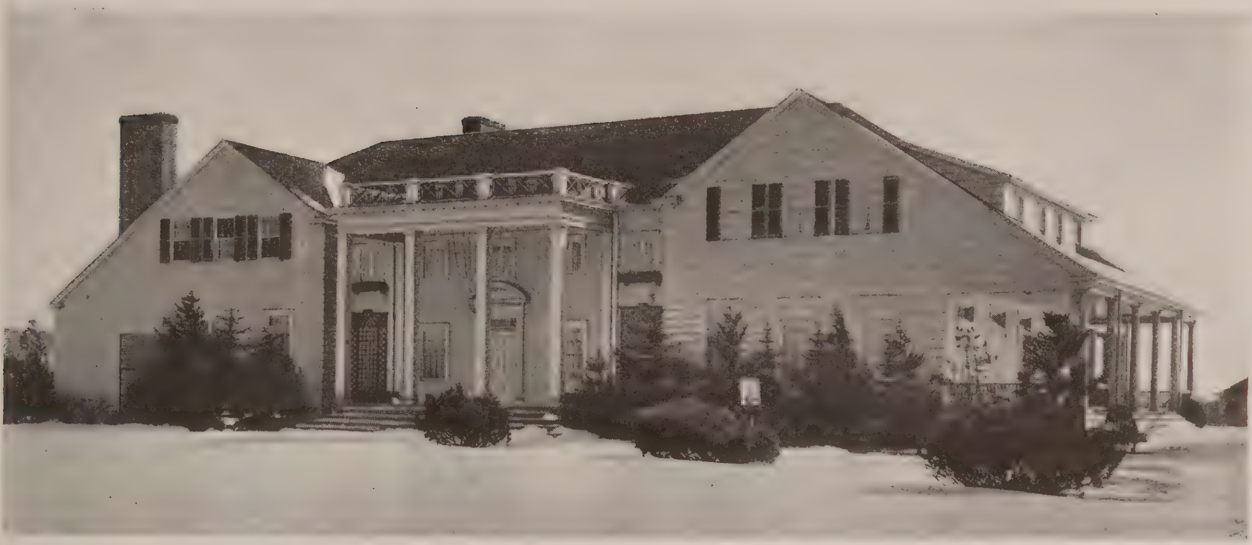
locker room, 80 x 38. This room is lighted and ventilated by a series of fourteen windows, 8 feet above the floor, seven on each side. On the floor over the locker room are a large dormitory and six individual bedrooms for use of members for week ends. These rooms are lighted by dormer windows, which pleasingly break the long stretch of roof, as may be seen in the illustration included here. In the one-story wing at the left end of the building is the professionals' shop, which connects by a short stairway with the men's locker room. This room is well lighted by a series of windows which look out on the golf course. The one-story building at the opposite end contains the men's lounge, a spacious room 33 x 23, having a stone floor, rough plaster walls and exposed ceiling beams. A large fireplace adds to the attractiveness of this room. In the rear of this wing are located the washroom, toilets and shower baths, which connect by a corridor with the locker room, the floor of which is on the same level as the floor of this wing. The informal balance of this plan adds to the interest of the elevations in a manner which shows that much care and study were given to the design of the club house as a whole.



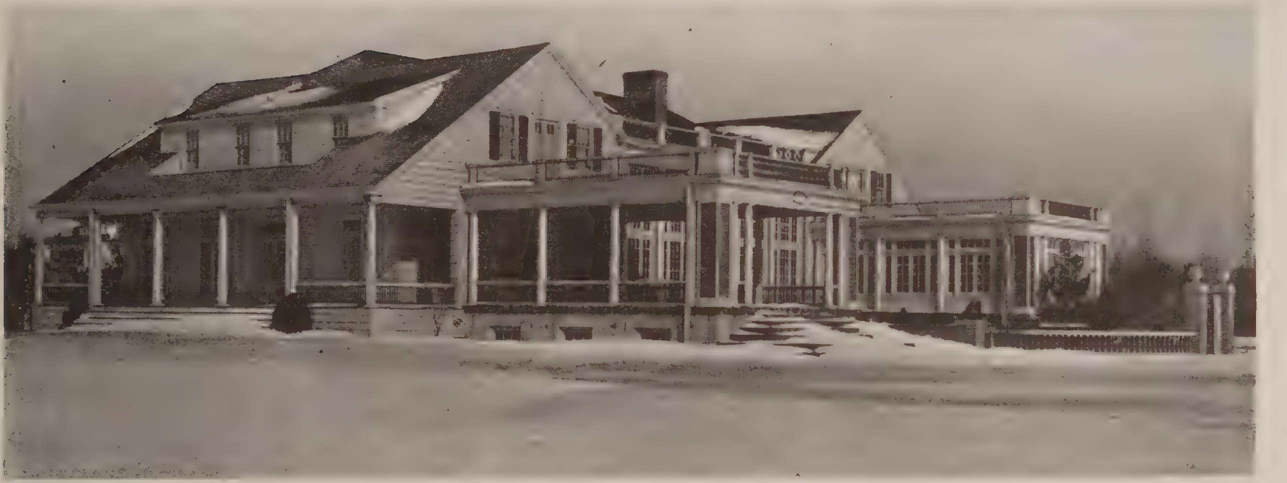
Entrance to Professionals' Shop and Long Corridor



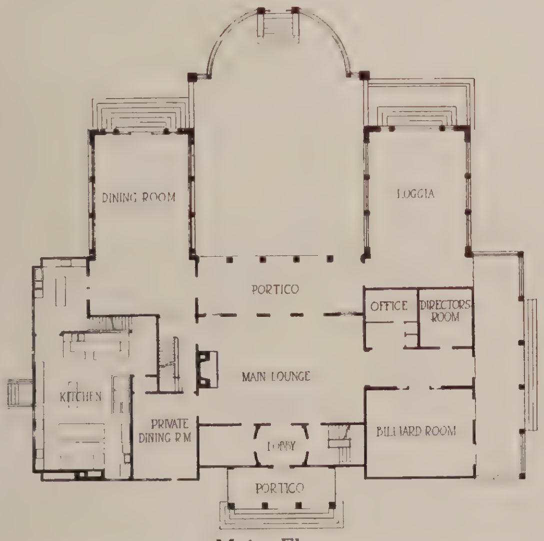
Entrance to Men's Lounge



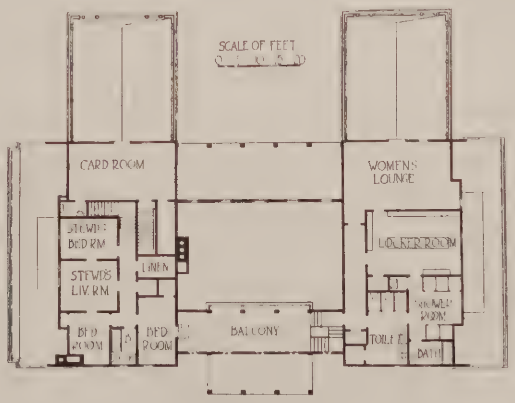
GARDEN CITY COUNTRY CLUB, GARDEN CITY, N. Y.
MORRELL SMITH, ARCHITECT



Rear Elevation



Main Floor



Second Floor

FORUM SPECIFICATION AND DATA SHEET — 20

Garden City Country Club, Garden City, N. Y.; Morrell Smith, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Frame, with sheathing and clapboards.

TRIM:
White wood.

ROOF:
Shingles, stained.

WINDOWS:
Wood frame and sashes.

FLOORS:
Straight oak.

HEATING:
One-pipe steam system.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
For lighting only.

INTERIOR MILL WORK:
Generally white wood, painted.

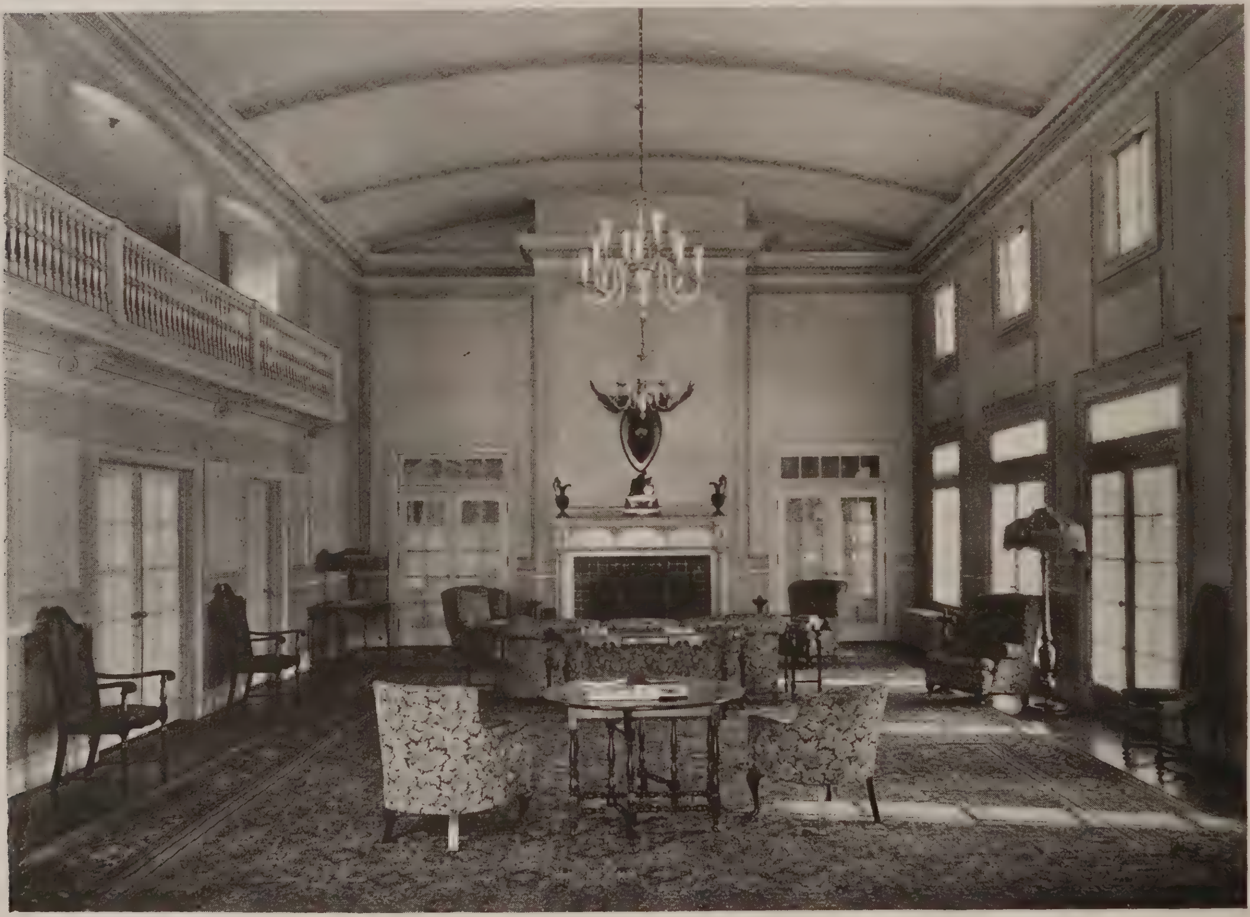
INTERIOR WALL FINISH:
Three-coat plaster, smooth finish.

NUMBER OF MEMBERS:
About 300.

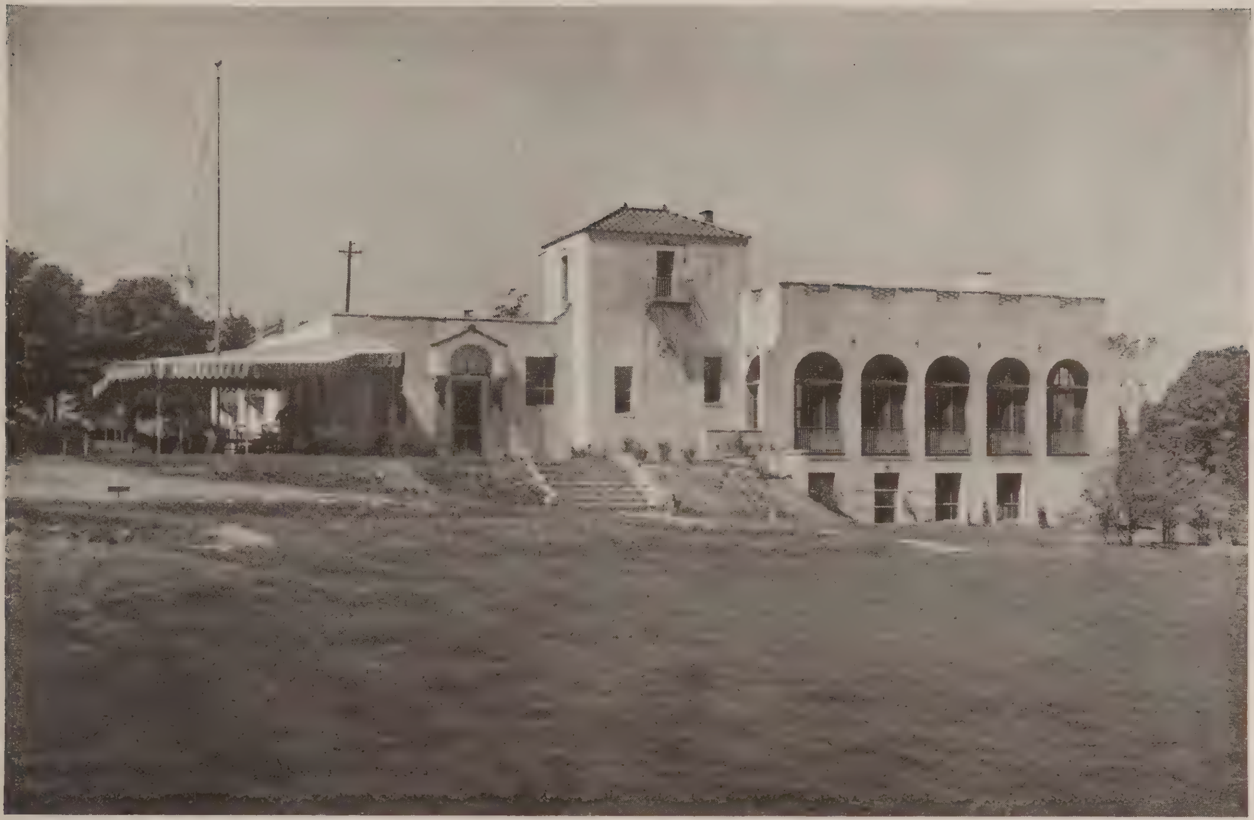
COST DATA

Approximate cubic footage of building, 209,000, at a cost of 32 cents per foot, at time of completion, May, 1918.

THIS small country club, designed in the Colonial style, has low roof lines and many porches which help to give a homelike quality to the design. Clapboards, painted white, and green painted blinds at some of the second floor windows still further add to the domestic character of the building. The plan shows a basement and two stories which contain all the chief features of a small country club, such as lounge, dining room, billiard room, bowling alleys, and locker rooms for men and women. The projecting dining room on one side and the open loggia on the other enclose a simple formal garden with curving balustrades and formal gateway at the outer end. The well studied plan of the main floor gives comfort and convenience for use in either summer or winter, when the enclosed portico outside the main lounge is a pleasant feature of the plan, connecting as it does the lounge with dining room and large loggia. It affords a place where dancers may sit or rest and converse between dances.



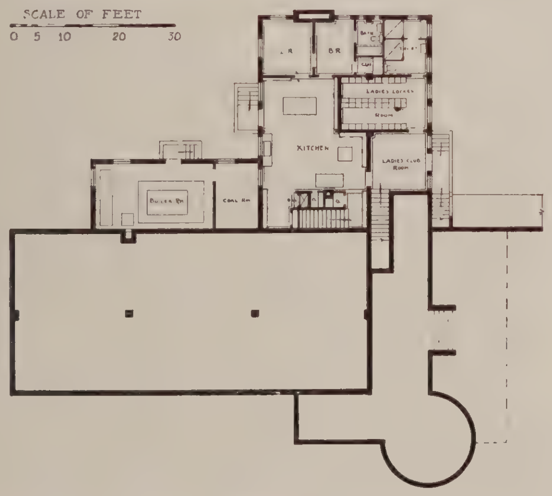
Main Lounge



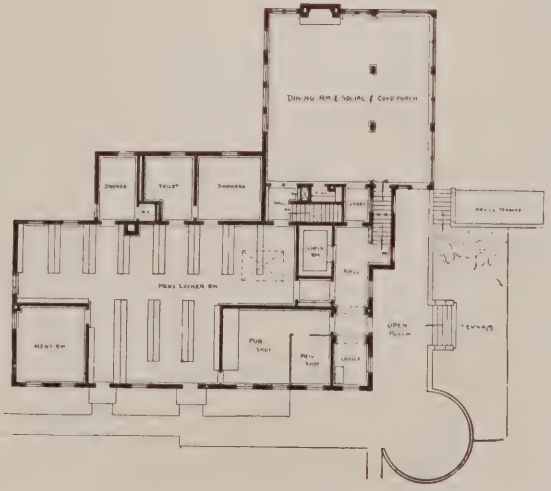
SLEEPY HOLLOW COUNTRY CLUB, BRECKSVILLE, O.
FULTON & TAYLOR, ARCHITECTS

DESIGNED in a simple adaptation of the Italian style, this small country club house shows much originality and study. Built on a sloping grade, it is possible to have a basement floor under part of the building. This fact adds a picturesque quality which could not have been so easily obtained had the building been located on level ground. The entrance front is broken into three parts by a low square tower, containing stairways which separate the combination living and dining room from the men's locker room and the professionals' shop. The entrance terrace with its awning-covered circular end is an attractive feature of the design. The gay colored awning contrasts pleasantly with the warm color of the stucco walls. The importance of the entrance door is emphasized by heavy pilasters, brackets and canopy in the Italian style. The iron balcony rail, the tiled decorations above the upper windows of the tower and the red tiled roof of this central feature of the design further accentuate the Italian style. The many arches and high parapet with open panels of

(Outline Specifications, Details and Cost on Next Page)



Basement



First Floor

FORUM SPECIFICATION AND DATA SHEET — 21

Sleepy Hollow Country Club, Brecksville, O.; Fulton & Taylor, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on terra cotta blocks.
TRIM:
White wood, painted.
ROOFS:
Composition and Spanish tile.
WINDOWS:
Metal casements.
FLOORS:
Straight oak and tile.
HEATING:
Hot water system.
PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting, and motor for cistern and refrigerating plant.

INTERIOR MILL WORK:
Birch, stained light green.

INTERIOR WALL FINISH:
Rough plaster, painted.

NUMBER OF MEMBERS:
250.

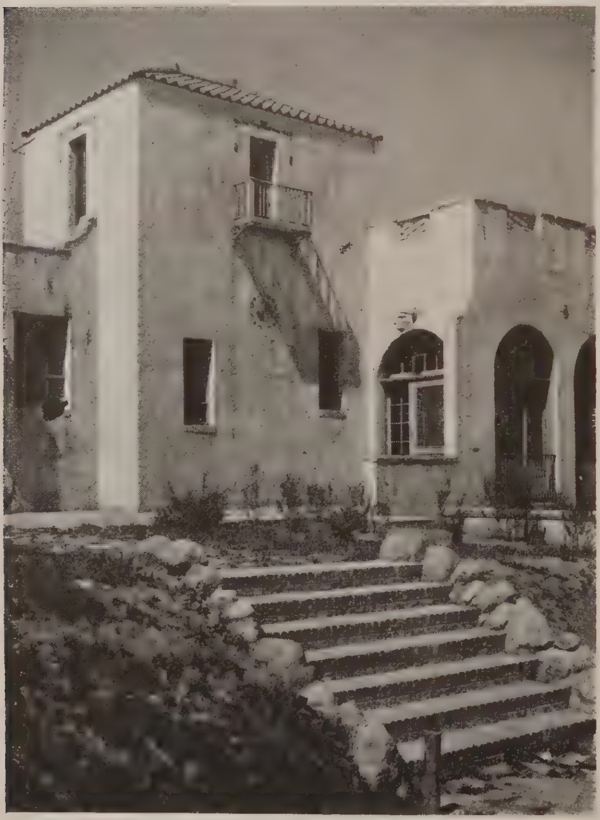
COST DATA

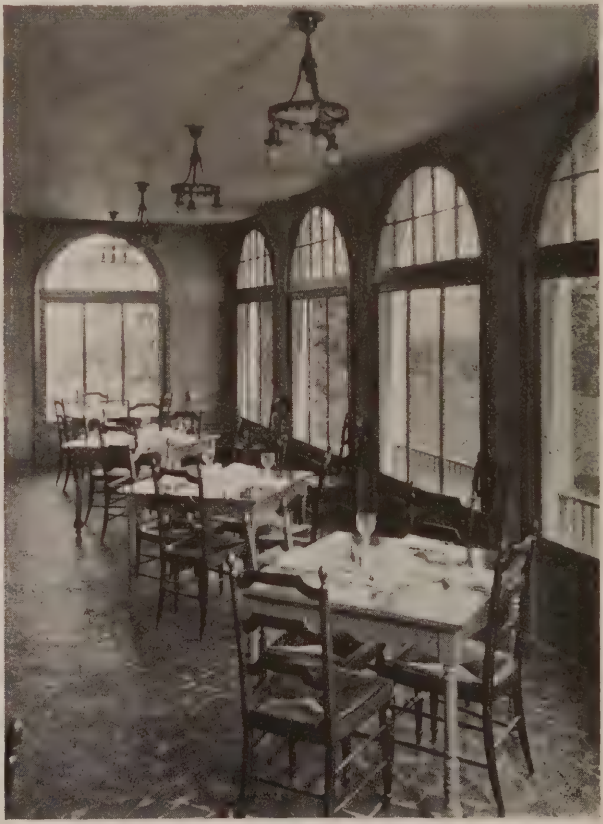
Approximate cubic footage of building, 145,000, built at a cost of 29 cents per foot in the year of completion, 1924.

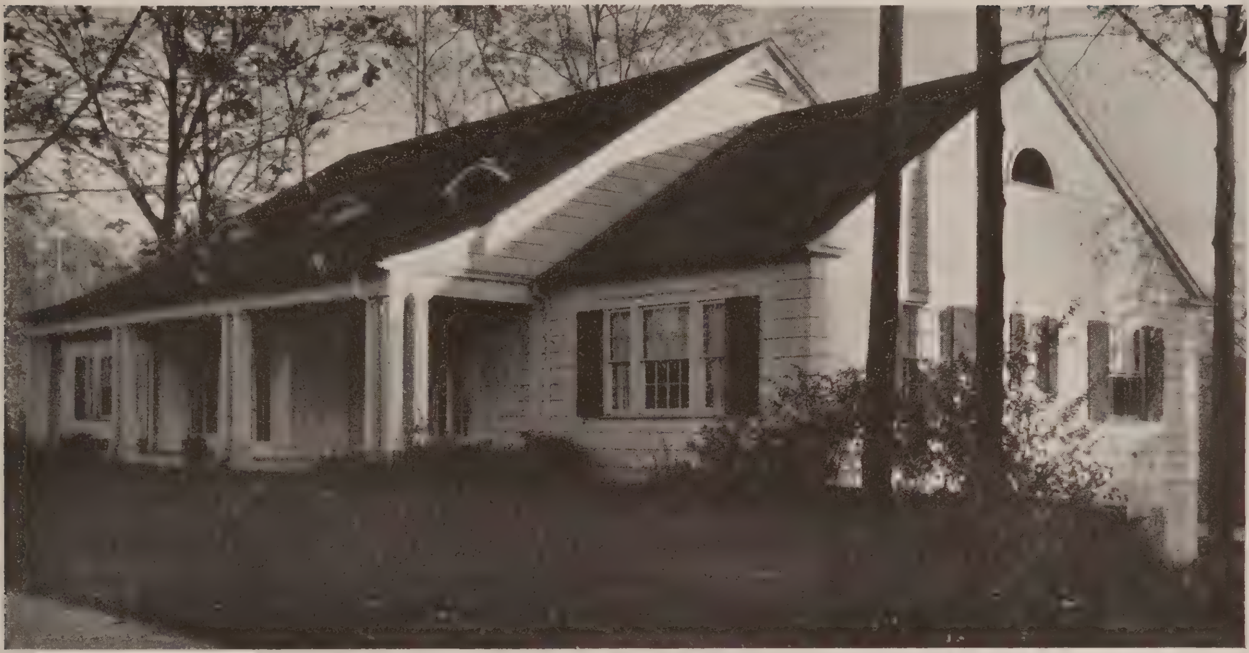
the living and dining room wing well interpret the use of this part of the building, and give a feeling of gaiety to the entire design. Arcades are invariably an architectural feature of buildings intended for the congregating of many people.

The plan, which is well indicated in the exterior design of the building, shows a long, low locker room with a professionals' shop, coat room and office at the front, near the entrance to the club, while suitably located at the rear are the smoking room, showers and toilets. The combination living and dining room, with its many arched windows, is reached from the entrance hall, and the men's locker room through two small halls or lobbies. The front part of this large room is really an enclosed porch with a broken slate floor, and is separated from the main living room by means of folding glass doors which may be closed when the weather or season requires.

Service for this room, when it is used for dining purposes, is secured by means of a large dumbwaiter. Basement locker rooms are seldom desirable when they can be avoided, but in this instance the fall in the grade permits large windows in all the rooms; in this way there is no suggestion that the women's department is underground, other than the fact that stairs are necessary to connect it with the main floor.


Detail of Entrance Front

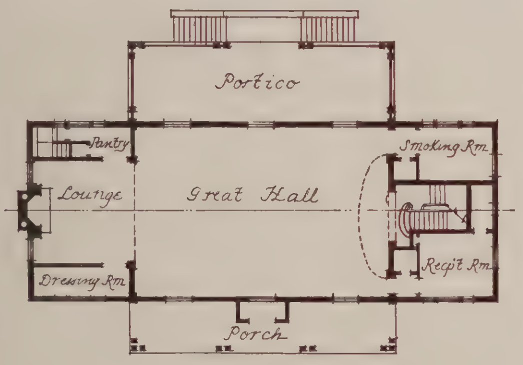

Enclosed Dining Porch



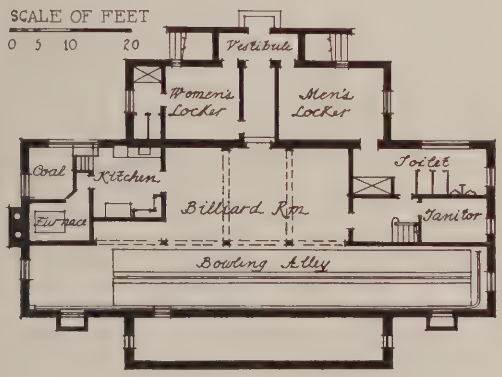
RIVERDALE COUNTRY CLUB, RIVERDALE-ON-HUDSON, N. Y.
DWIGHT JAMES BAUM, ARCHITECT

DESIGNED in a simple version of the Colonial style, almost Dutch in feeling, this attractive small country club possesses to an unusual degree an atmosphere of homelike charm and domestic simplicity, due to the use of low, sweeping roof lines, small paned windows and the white painted siding. The sloping grade permits use of two floors, on the

(Outline Specifications, Details and Cost on Next Page)



Main Floor



Basement

Detail of Veranda

FORUM SPECIFICATION AND DATA SHEET — 22

Riverdale Country Club, Riverdale-on-Hudson, N. Y.; Dwight James Baum, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Clapboards on wood frame; matched siding used on wall of veranda.

TRIM:
White wood, painted.

ROOF:
Shingles, stained two shades of green.

WINDOWS:
Wood, double-hung.

FLOORS:
Pine.

HEATING:
Steam; exposed radiators.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood, painted gray generally; cypress, stained, in service portion.

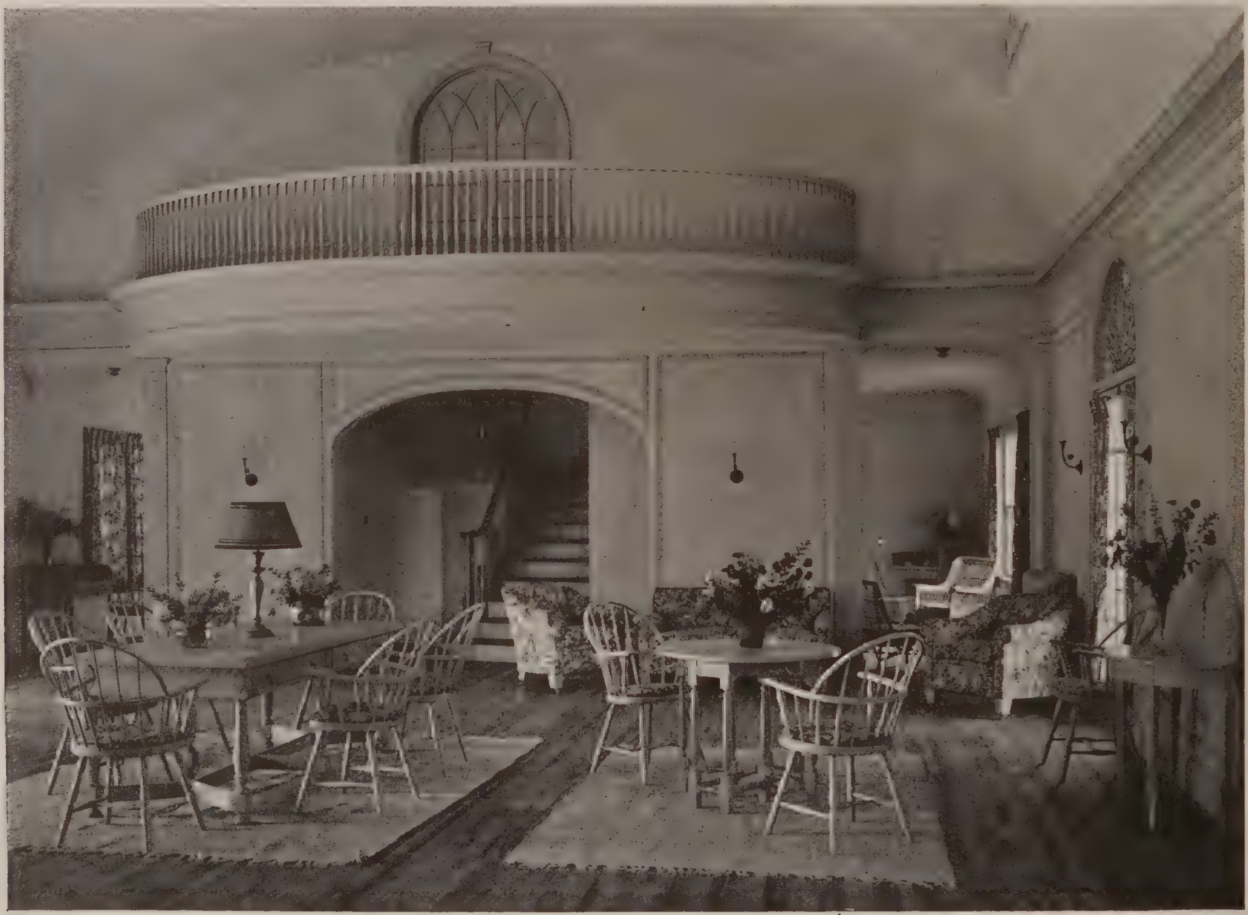
INTERIOR WALL FINISH:
Plaster, three coats; sand finished and left natural.

NUMBER OF MEMBERS:
55 families, or about 200 members.

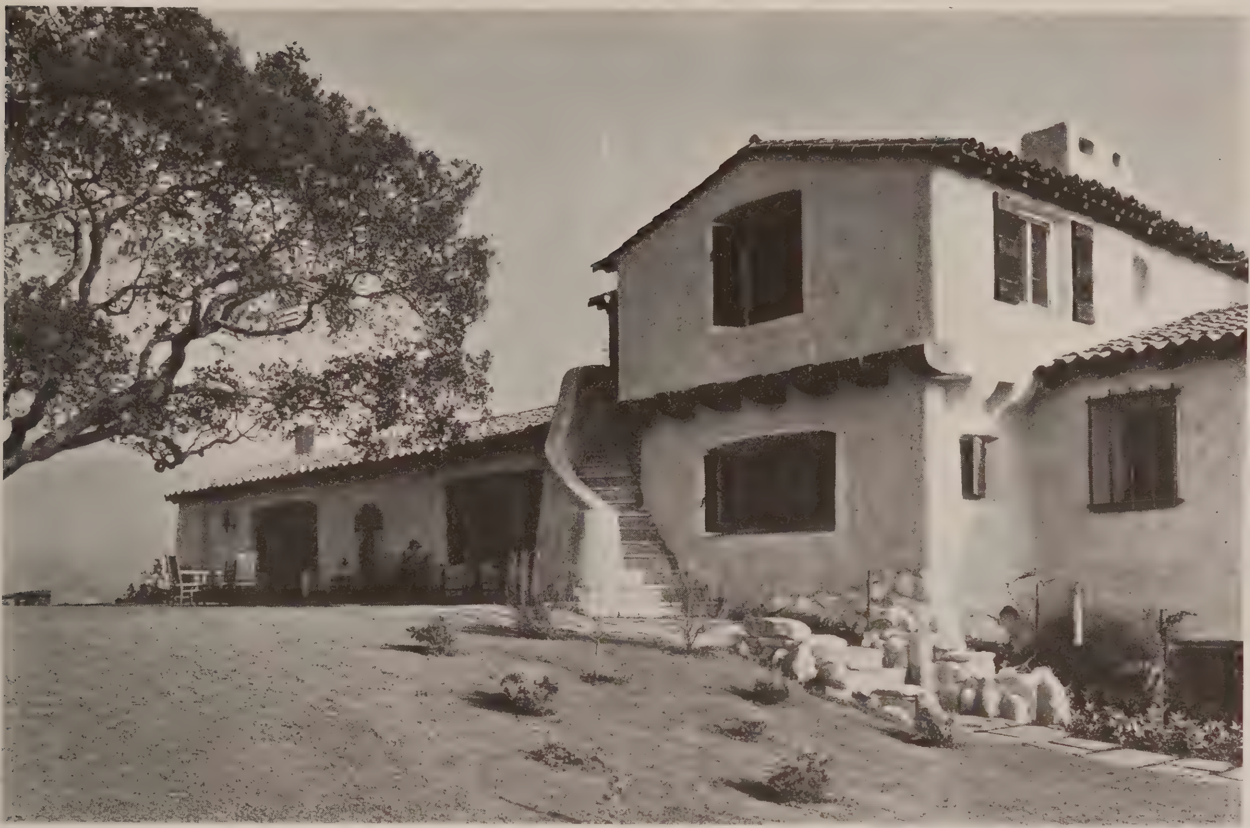
COST DATA

Approximate cubic footage of building, 99,145, at a cost of 20 cents per foot, in year of completion, 1915.

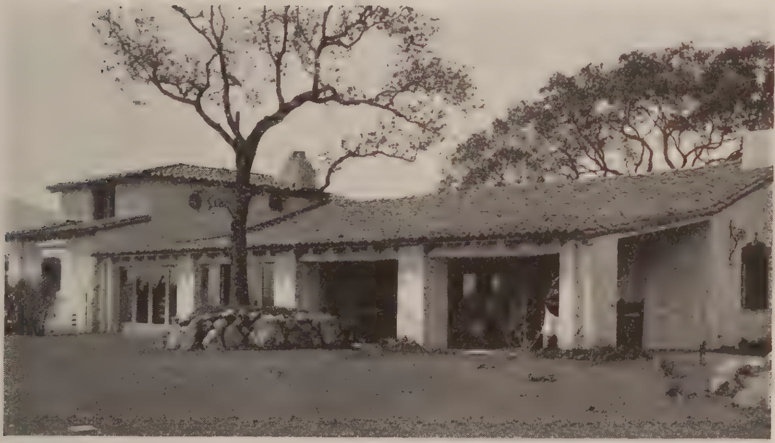
lower of which are located a bowling alley, billiard room and small locker rooms for men and women, as well as kitchen and toilet accommodations. On the upper or main floor is a large room with a barrel vaulted ceiling called the "Great Hall," at one end of which are a deep alcove and fireplace, and a pantry and stairs to the kitchen below. At the other end of this hall is a stairway leading up to a small balcony and down to the basement floor. The simple architectural treatment of this "Great Hall" is unusually successful in its combination of buff painted, paneled, plaster walls, and gaily decorated, chintz-hung windows. Space does not permit as detailed a description as this successful interior really deserves.



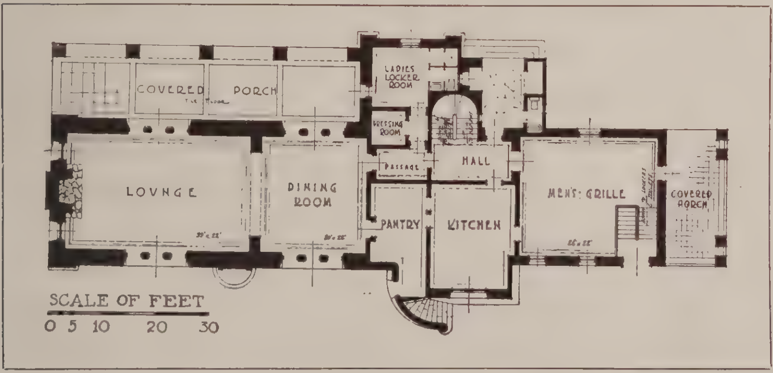
Stairway End of the Great Hall



OJAI VALLEY COUNTRY CLUB, OJAI, CAL.
WALLACE NEFF, ARCHITECT



Main Porch



Floor Plan

AWARDED a certificate of honor by the American Institute of Architects, this interesting small club, built in the Spanish style so appropriate to southern California, possesses unusual charm of design and logical arrangement of plan. Located on a small plateau, overlooking the Ojai Valley, this long, low building perfectly fits its high location. The warm tones of the stucco walls contrast pleasantly with the deep reds and browns of the handmade roof tiles, while the dark stain of the exterior trim accentuates the window openings.

In design the principal rooms of the interior agree with the Spanish style of the exterior. Heavy, rough hewn beams, with exposed roofing boards, give to the lounge and the men's grill the atmosphere of the simple farm buildings of old Spain. In the ceiling of the dining room are rough beams and surfaces decorated in brilliant colors, characteristic of Mediterranean interior architecture. All the walls are finished in rough plaster, whitewashed. The furnishings, except in the dining room, follow the American desire for

(Outline Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 23

Ojai Valley Country Club, Ojai, Cal.; Wallace Neff, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on terra cotta blocks.
TRIM:
Pine, stained.
ROOF:
Handmade Spanish tile.
WINDOWS:
Wood casements.
FLOORS:
Chestnut, stained brown.
HEATING:
Steam; oil used as fuel.
PLUMBING:
Enameled iron.
ELECTRICAL EQUIPMENT:
Lighting.
INTERIOR MILL WORK:
Pine, stained.
INTERIOR WALL FINISH:
Rough plaster, whitewashed.
NUMBER OF MEMBERS:
300.

COST DATA

Approximate cost per square foot, figuring each floor separately, $5.50, in the year of completion, 1924.

comfort rather than for stylistic appropriateness, but much use is made of materials in bright Spanish colors. Such furnishings, however, as built-in dressers, sideboards, tables, etc., have a distinct, Spanish feeling.

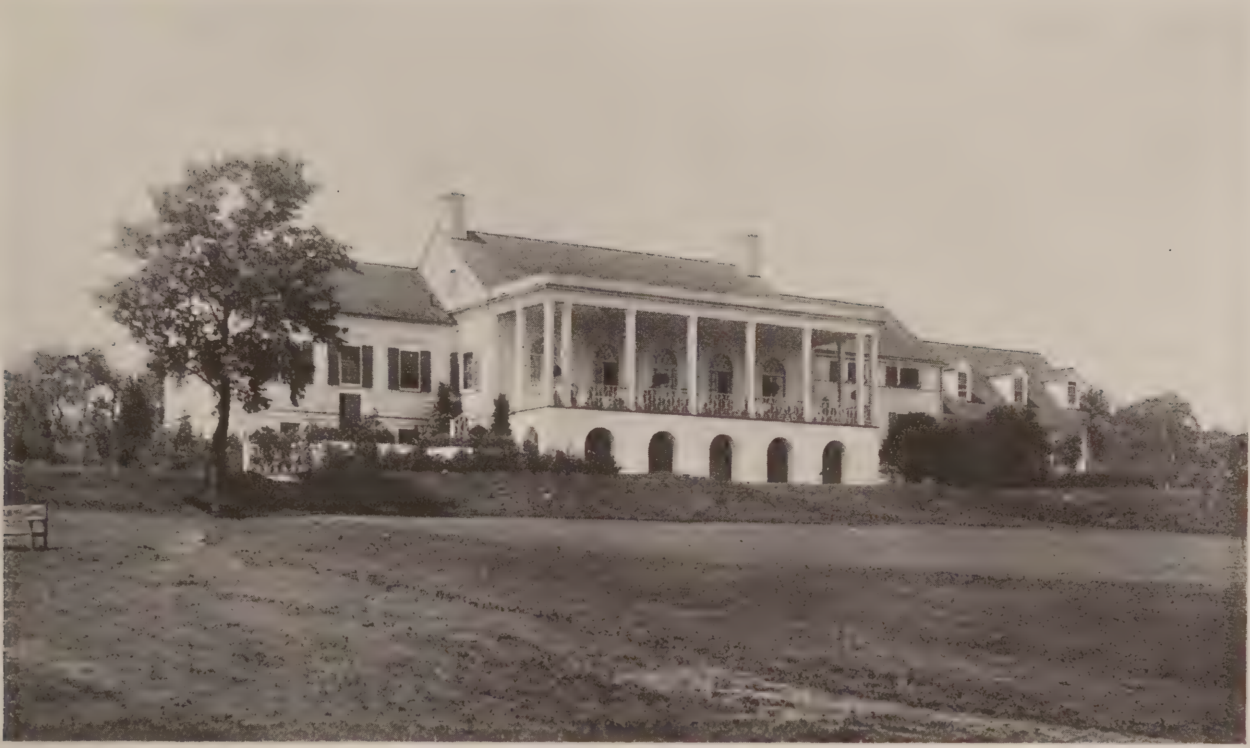
The long, simple plan shows an arrangement of lounge, dining room and men's grill occupying the entire width of the building, which makes possible windows on all three sides of the lounge and grill, and on two sides of the dining room. This important feature is one that should always be considered in planning clubs for warm climates or for summer use alone. Cross-ventilation is not always possible, but the more windows used, the more open and attractive is a club room for summer use. The kitchen and pantry are conveniently located in the center of the plan between the men's grill and dining room, while the women's locker and dressing room are placed on the main floor, off the entrance hall. In the basement directly below the grill is the men's locker room, where excellent light and ventilation are made possible by the sharp drop in the grade at this end of the building.

No collection of views of recent American golf or country clubs would be complete without an appreciative presentation of this charming southern California club house, in which comfort and local color have been so very successfully combined.

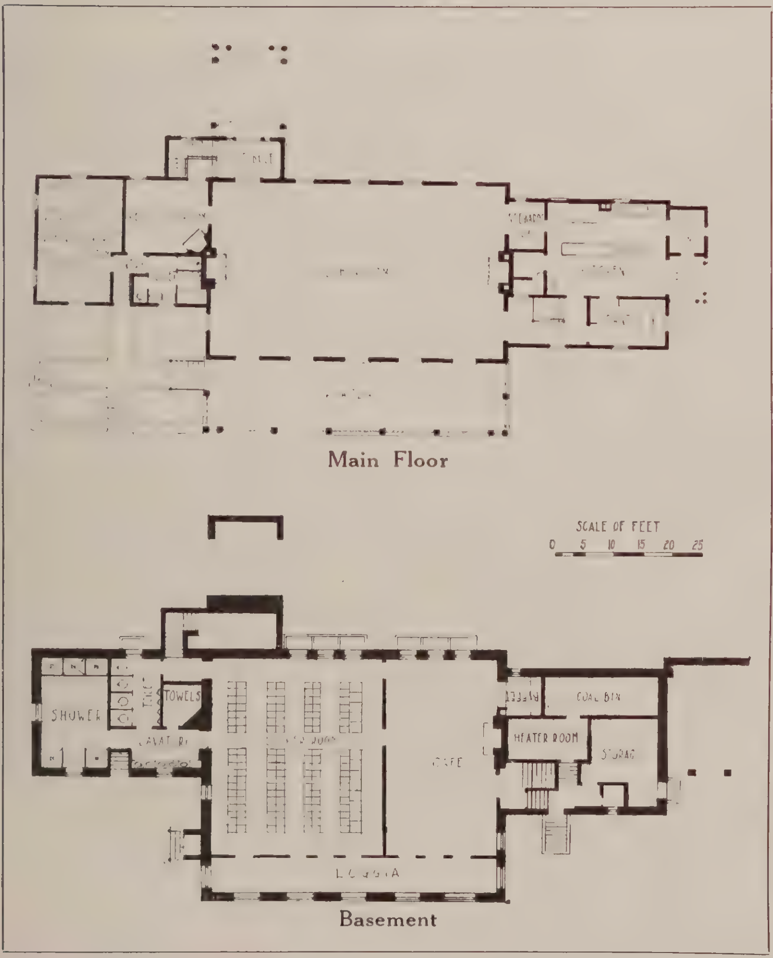
The exterior of the Ojai Valley Club, quite as much as the interior, has been designed for comfort and use. The long covered veranda extending the length of the lounge and dining room on the one side is balanced by an open terrace on the opposite side. The veranda is paved with large square tiles, varying in color from brown to deep red. The main roof of the building is brought out in low, sweeping lines over this porch, thus successfully tying it into the design of the building itself. The rafters and boarding of this roof are left exposed, adding to its rugged and informal character. Iron grilles and gates protect the windows and doors in true Spanish style, further carried out in the wrought iron lighting fixtures. The furnishings of this porch repeat in their massive construction and rugged lines the furnishings of the interior of the club house. Modern rush-bottomed chairs are combined with the early Spanish tables and benches. An occasional old Italian oil jar still further heightens the atmosphere desired. From the covered porch, as well as the open terrace, views of unusual breadth and magnificence are obtainable. Far-stretching fields lead the eye to low-lying hills, beyond which tower rugged crests of distant mountains, closing the vista.

Lounge

Dining Room



KNICKERBOCKER COUNTRY CLUB, TENAFLY, N. J.
AYMAR EMBURY, II, ARCHITECT



Main Floor

Basement

AS this small country club was built to accommodate, primarily, the residents of the northern part of Bergen County, no guests' bedrooms were required. The amount of money available for construction was small, and the building is therefore typical of the average country club house in the neighborhood of small towns and cities. The location is on a hillside, close to the Knickerbocker Road, the old Dutch thoroughfare leading northward from New York, after which the club was named. It seemed appropriate, therefore, that the architecture should follow the historic Dutch architecture of northern New Jersey. Advantage was taken of the hillside slope to place the men's cafe and men's locker room on the basement floor, with the kitchen at a level midway between this and the main floor, so that service to the cafe, to the lounge, or to the piazza should be convenient.

On the main floor of the club are the lounge, a small office, women's reception and locker rooms, and the professionals' shop. Dining service during the summer is on the piazza on the main floor or on the terrace at the basement floor level, as well as in the men's

(Outline Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 24

Knickerbocker Country Club, Tenafly, N. J.; Aymar Embury, II, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Wood, frame and shingles.

TRIM:
White pine, painted.

ROOF:
Shingles, stained.

WINDOWS:
Wood frames and sash.

FLOORS:
Pine.

HEATING:
Vapor, steam.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine, painted.

INTERIOR WALL FINISH:
Three-coat plaster, smooth and rough finishes.

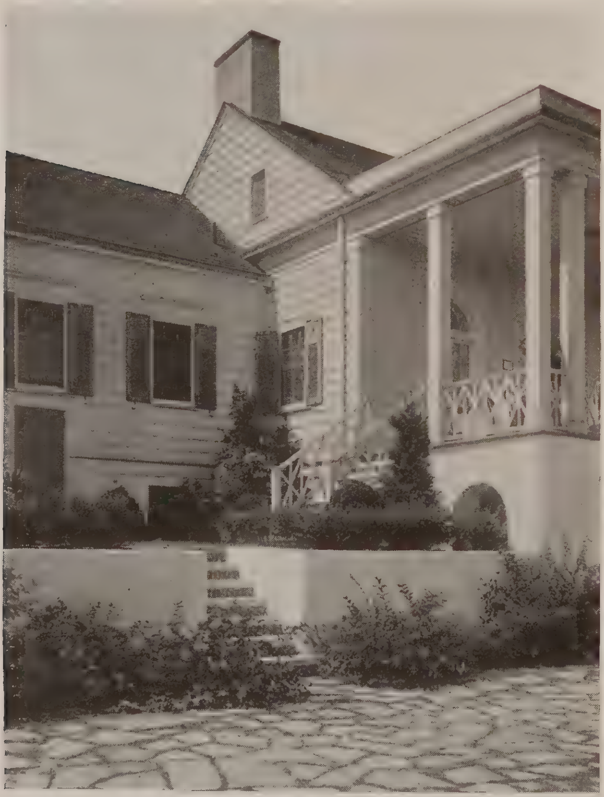
NUMBER OF MEMBERS:
325.

COST DATA

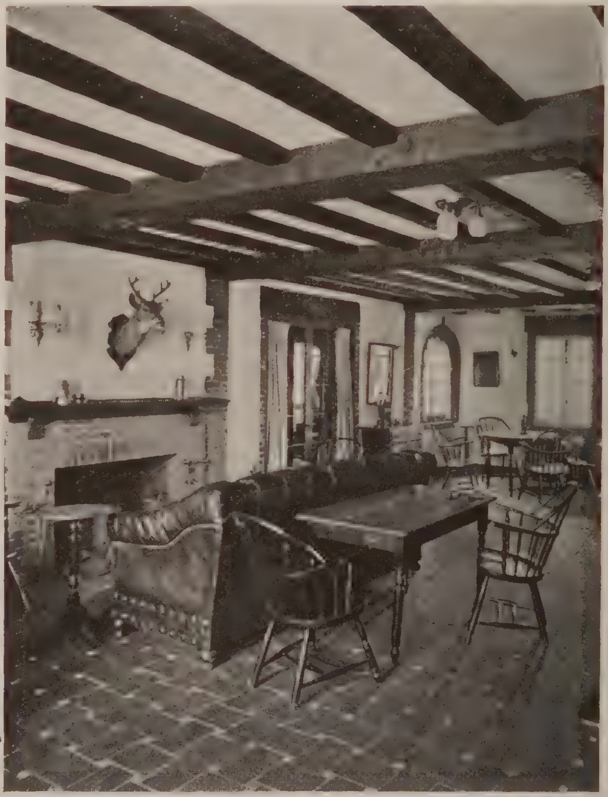
Approximate cubic footage of building 100,000, at a cost of 31 cents per foot in the year of completion, 1914.

cafe. In the winter, a portion of the lounge is arranged for dining service by dividing off a section of it with screens, leaving a space sufficiently large for small dances and receptions. The kitchen department is reduced to a minimum for full club service, and has bedrooms for servants over it. There is direct access from both the men's and women's locker rooms to the terrace in front of the building, and thence to the last green and also to the first tee.

In order to reach any part of the grounds, it is not necessary to cross the entrance road, which is at the rear of the building. The interior decorations, which were carried out by the well known interior decorator, Louise Putnam Lee, in collaboration with the architect, follow closely and pleasingly the Dutch Colonial character of the architecture.



Detail of Terrace



The Men's Cafe

Locker Room Planning and Equipment

By PHILIP S. TYRE, *Architect, Philadelphia*

WITH the development of the country club idea and the addition of various pleasant social features, the golf club building has become a decidedly complex problem. Architectural design has been called upon for both exterior and interior to meet the æsthetic tastes of those accustomed to the comfortable walks of life; lounges, card rooms and other facilities have been added, while the requirements of food service have made necessary the provision of dining rooms, grills and restaurants. Always, however, there remains the problem of the locker room, which has been often overshadowed by other considerations, so that in many clubs today there will be found locker rooms poorly located, equipped and ventilated.

There are perhaps more golf and country clubs in the United States than the average person realizes,—at least 3,000 individual clubs being on record. This number indicates an almost unbelievable growth in the popularity of golf during the last few years, and indicates plainly that the physical requirements established for this game must be analyzed with extreme care and with primary consideration of this subject of locker room planning and equipment. In a recent comprehensive study of many locker rooms throughout the eastern part of the United States, it was found that in few cases only had a detailed analysis of requirements been made before planning, and that very often a mistaken attempt at economy was evident in the locker room, while comparatively lavish expenditures had been made on the various rooms used for social functions and dining.

The first consideration in deciding upon a locker room plan is whether this room should be located in the main club house or established as a separate locker house. There is a third alternative, which is to build a locker house as a wing with service connections to the main building. Each of these methods of handling the problem has its advantages. The only logical reason for locating a locker room directly in the club house is that of structural economy, and when this is done great care should be taken to isolate the locker room and to place it in a position where it may enjoy as much privacy and natural ventilation as possible. The locker room is a carefree place, conducive to loud arguments and perhaps slightly flavored conversation and remarks which would not sound so well if overheard.

The better solution of the problem is to have an independent locker house, which may be located away from the main club house if the money is available for such an expenditure, or at least made a separate wing of the club house. There is, of course, a definite structural cost saving in having the

Main Locker Room, North Hills Country Club, North Glenside, Pa.
Philip S. Tyre, Architect

Locker Room of North Hills Country Club, North Glenside, Pa.

locker house as a wing rather than as an independent building. This method of planning makes possible the use of the same lavatories and other service features for both the locker house and the main club house. It also provides for food service into the locker house from the main kitchen instead of making it necessary to establish an independent food service unit. This decision is, however, primarily based on money considerations and policy, but it should be seriously considered by the board or committee in charge of the original plan.

There are certain fundamentals which the golf player requires and should have in a locker room. These include good light and good ventilation; lockers of ample size and convenient arrangement; aisle spaces of comfortable widths, which will prevent obstruction of aisle traffic; a good shower room and dressing room with proper facilities for drying clothes, shining shoes and similar forms of service. There should also be some way of serving food and particularly facilities for quick luncheons and informal meals after the game is over. For purposes of ventilation, light and convenience, the locker room will be one large room, very often planned with two floors to provide the total locker space requirements. In any case a comfortable lounge and eating place should be provided. This may be at the center of the room if the dimensions are such as to allow for the necessary space, or it may consist of an adjoining room convenient for service.

The locker room after all is much used by members, and a considerable amount of time is spent in various stages of undress before, and particularly after, the game. Here, with the proper facilities for relaxation, the player can enjoy his happiest hours discussing the day's score, presenting his own excuses and his prophecies of scores to be made another day. This gives a pleasant atmosphere, without restraint, and one problem of the architect is to sufficiently realize this natural requirement so that he may incorporate in the planning of the locker room those features of comfort and convenience which so much enhance the enjoyment of the game.

In approaching the more detailed phases of planning, we might well stress the point that for the planning of the locker room house the architect can for the moment forget architecture and think only in terms of comfort and convenience of the members. Such a room or building should be planned from the inside out. If, for the sake of economy in money or in space, it is decided that the locker room must be in the club house, let it at least be anywhere but in the basement or in the attic. A great many country club builders have evidently thought that the otherwise useless space under the roof would be a good place to put golfers' lockers, and you may find members by the hundreds climbing stairs and suffering inconvenience during the day while elaborate, spacious and accessible dining rooms, reception rooms and lounges are almost totally empty and useless. A canvass would probably show more locker rooms in basements than elsewhere, because often after all the other departments of a conventional club layout have been provided for, the locker room, which is the most important room of all, is disposed of in a basement location of dampness, darkness and poor ventilation. Of course, there is often some condition of grade which allows some windows and doors, but in too many instances provision is not made for thorough cross ventilation or for good lighting.

The locker room should be near the parking space and near the first tee. If possible, it should be on the ground floor, with a good outlook and freely circulating air. It should have seclusion of sound and sight. If the locker room is located in a separate wing, its exterior will naturally conform to the general architectural scheme of the building. If it is a separate building some conformity is desirable, but it is not necessary to provide an elaborate exterior. This building should be primarily a locker house, and if it appears to be such it is in its favor.

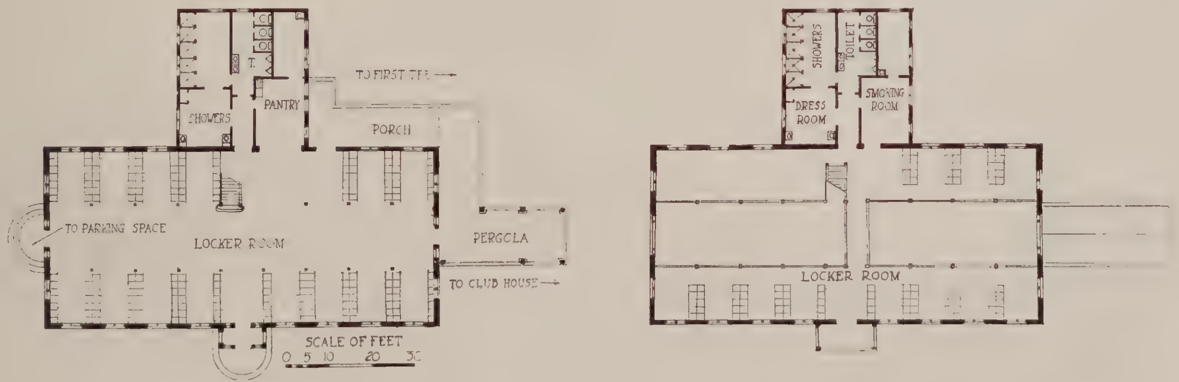
In regard to arrangement and equipment, it is perhaps the simplest method to take up point by point

Lounge and Dressing Room in North Hills Country Club

suggestions which may prove of value to the designer. All the wall surfaces should be treated in light colors which will increase the efficiency of natural and artificial lighting by reflection and diffusion. The sanitary appearance is also enhanced by the use of light colors. Where possible, the wainscoting throughout the locker room, corridors and other rooms should be of marble, tile or enameled brick. In toilets, showers and dressing rooms this treatment should be carried up as high as the appropriation will allow,—7 feet at least, to prevent the damage done by steam and to provide sanitary conditions. The junctures of floors and walls should be treated with a sanitary cove base for easy cleaning. It is recommended that soft floorings, such as rubber, cork or linoleum, be used throughout all rooms. Of course the floors must be strong enough to resist defacing by cleats on golf shoes, but resilient floors are found quite satisfactory for this purpose. In some cases perforated or woven mats are used over concrete floors and found fairly satisfactory. Floors in shower rooms and lavatories should preferably be of non-slip material with a cove base.

Lighting fixtures should be ample in number and carefully placed so that not only will all aisle space be well illuminated but locker interiors as well. This point is particularly important, because in many instances golfers play up until the time darkness sets in. The electrical equipment should also include electric fans to make the locker room more comfortable on warm days, and annunciators should be placed at the end of each set of lockers so that service calls may be conveniently made.

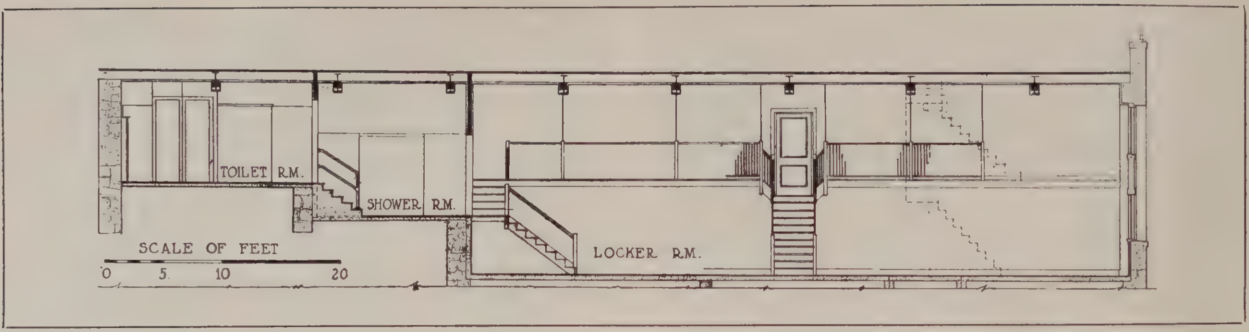
A very desirable feature is the incorporation in the plan of a drying and dressing room which will be about the same size as the shower room and provide facilities for towel drying, hair combing and shaving, away from the steam and humidity of the shower room. In regard to the relative provision of toilet, lavatory and shower facilities, reference can be made to the accompanying plans of the locker room of the North Hills Country Club, which represents a careful analysis of this problem in many golf clubs. Here will be found on the first floor



First Floor

Second Floor

Plans of Main Locker Room, North Hills Country Club
Philip S. Tyre, Architect



Section Through a Locker Room at the Bonnie Briar Country Club, Larchmont, N. Y., Showing Economical Location of Toilet and Shower Rooms to Serve Both Locker Levels
Trowbridge & Livingston, Architects

provision for 203 lockers and on the second floor for 130 lockers, making total accommodations in the locker room for 333 playing members. It will be noted that each floor has shower room and lavatory facilities, also a dressing room. On this basis there are in all two dressing rooms, ten showers, eight wash basins, four stalls and six booths in proportion to the total 333 lockers. This relative proportion forms a sound basis for estimating needed facilities.

Dimensions should include clear ceiling heights of 9 feet minimum. Shower stalls should be from 3 feet, 6 inches to 4 feet square, and there should be a clear space in front of the showers of 7 or 8 feet. Lockers should be arranged in double rows wherever possible, locating these rows at right angles with exterior side walls to allow a window in every locker aisle. The width of aisles for the locker rows should be never less than 6 feet, and 7 feet preferably. The minimum width of stairways and ordinary aisles should be 4 feet. Lockers should be of metal, which can be obtained in the standard green or may be painted in other colors which harmonize better. The height of lockers may be 5 or 6 feet, the lower locker making it possible to see around the room, but the greater height allowing a more comfortable disposition of clothing and shoes. Lockers should be of ample size, none smaller than 18 by 24 inches and preferably larger. It is well to have one shelf at the top tilted up to prevent golf balls from rolling off. No legs to lockers are needed.

There are, of course, many special details of comfort and utility which may be considered. The showers should be equipped with dependable mixing valves and be of metal which will not rust. Floors in showers should be at the same level as the shower room floor, but depressed about 2 inches around sides and fronts of stalls in order to drain easily. A sill projecting above the shower floor is dangerous.

Locker House of the Westchester-Biltmore Country Club
Warren & Wetmore, Architects

The Ventilation of Locker Rooms

By JAMES H. RITCHIE
of Ritchie, Parsons & Taylor, Architects, Boston

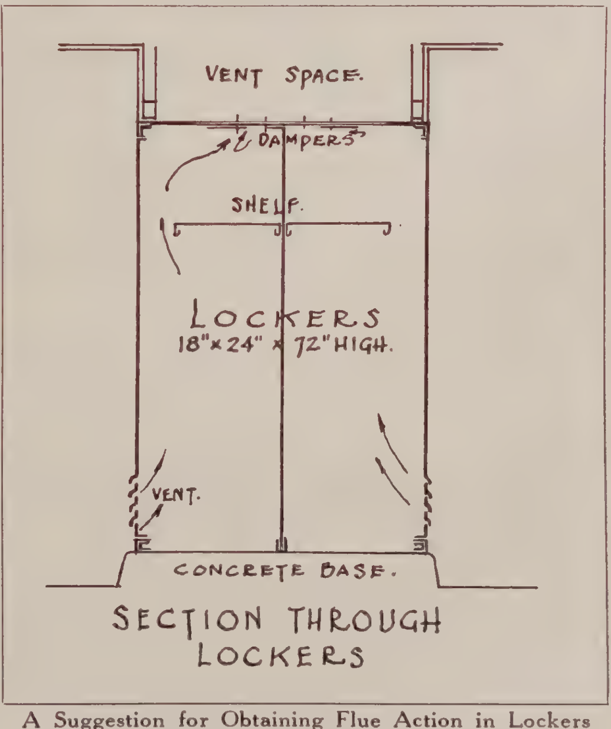
IMPORTANT as it is, the proper ventilation of lockers and locker rooms in golf and country clubs is frequently overlooked or neglected. When it is remembered that clothing is sometimes hung in lockers before it has been thoroughly dried, and that in order for it to become dried there must be adequate circulation of air, the absolute necessity of ventilation will be quite apparent.

Use of two general types of ventilation is open to the designers,—the first, natural ventilation provided by large air spaces, ample window areas, a monitor type roof, and at least a 12-foot clear room height; the second, a system of room and locker ventilation secured by use of a positive exhaust fan. The first system is perhaps the simplest, since it contemplates only the provision of a sufficient amount of room volume and air current to minimize the foul air conditions. The circulation of air through the lockers themselves is merely nominal, being entirely through the openings at the top and bottom of each locker door. These ventilators should be generous in size, but at the same time they should not be too open, nor should they extend the whole height of the locker door. If this system is adopted, it must be understood that since the windows are depended on for the movement of fresh air, the room will be somewhat drafty. Due to this fact the users of the room, being for at least a part of the time of their occupancy scantily clad, are inclined to close these natural sources of fresh air and thus close off the room's only means of ventilation. The designer must also realize that with this natural system of ventilation the circulation of air through the lockers themselves is to a great extent impeded by the contents of the lockers being so disposed as to prevent any great amount of circulation, since the only means of creating a draft through the lockers is the difference in the temperatures existing opposite the lower and upper door openings. Use of the locker door which has its entire front open in the form of a grille may tend to defeat whatever natural flue effect, small enough to be sure, two openings in the door might have. There being no operating cost is perhaps the greatest factor in favor of this system. With this natural type of ventilation, however, there can only be approximated the ideal freedom from body odors in the lockers and room that will be attained with use of the positive system.

The second or positive exhaust system of air from the room through the lockers has many points in its favor, more particularly the fact that there is a positive circulation of air through each individual locker and its contents, thus drying out perspiration-saturated clothing and at the same time providing a constant supply of pure air in the space adjacent to the lockers. The argument may be advanced that exhausting this amount of air to the outside will place an added tax on the heating plant of the building in winter, but it will be recognized that the greatest need of locker ventilation comes during summer months, when no heat at all is required in the building. It is proposed to use a blower fan to supply the room with warm air, but to depend upon infiltration and direct radiation to supply the warm fresh air in the room for such infrequent times during the heating season as the exhaust fan is used. Some simple system of by-passing the fan should be employed that will allow of the room to be vented by natural means when the fan is not used.

Whether natural or exhaust ventilation is employed, the windows of the room should be placed with their sills about 5 feet above the floor and their lower sashes so fitted that, excepting when they require cleaning, they cannot be opened. This not only affords more privacy to the room, but gives more even ventilation, since the fresh air must circulate through the room before being exhausted. When the positive exhaust system is used, the fact that there are numerous vent openings from the main room, that is at least one to each locker, prevents the development of drafts.

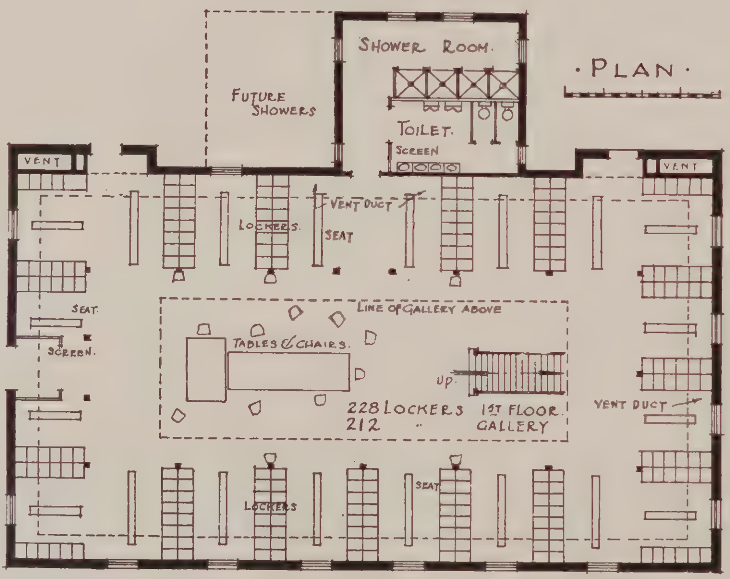
An ideal arrangement of lockers for the positive system places the lockers in groups, back to back, in double rows, with a furred space over them con-

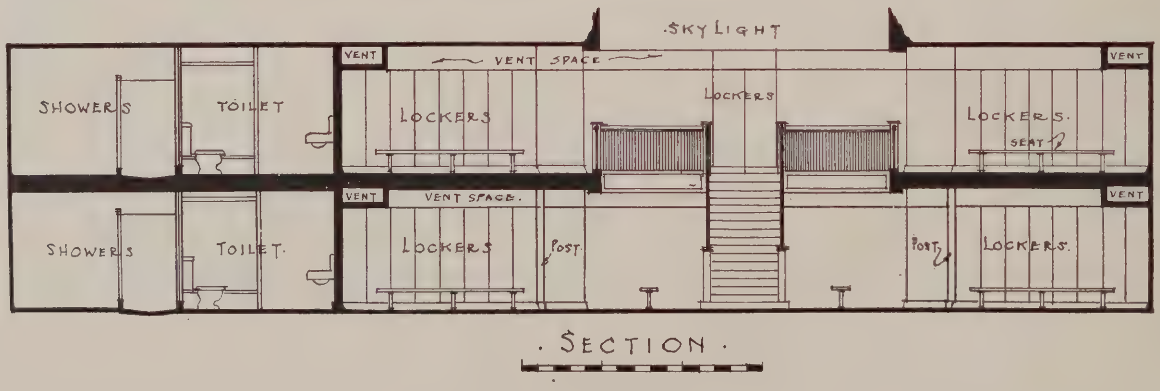


A Suggestion for Obtaining Flue Action in Lockers taining the ventilating ducts. The lockers are set up off the floor on a concrete base; the locker doors are provided with ventilating openings at the bottoms only, and dampers are arranged for adjusting the air through each locker. These dampers should be so fitted as to allow of their being locked in position after the air flows through each group of lockers are balanced. Ventilating a locker near the bottom, with ducts under the room's floor, works fairly well for industrial locker rooms, but the up-draft scheme as here outlined preserves for use some of the most valuable space in the locker,—the floor space, which is needed for shoes and club bags. Such a disposition of the lockers requires no special apparatus. The lockers themselves with ventilating openings near the bottoms of the doors and equipment with control dampers are stock articles, carried by nearly all the manufacturers of steel lockers. With such an arrangement it is quite possible to arrange the lockers in two decks, the upper deck being set on a gallery with an open court in the center, and all this in a room of which the total height is not over 16 feet. This permits of a large number of lockers in relatively small floor space. The plan of such a layout is shown just below. With the positive system all the air in the room is exhausted through the lockers and carries off the odors of the room and the odors of the clothing.

A further particular advantage in this system is that it lends itself well to the venting of the shower room at the ceiling, and this point alone is of no inconsiderable importance, since if left unvented or at best provided with gravity ventilation, the air in the room soon becomes so humid that it is practically impossible for the bather to completely dry himself. It is quite possible to tie the ventilation of these lockers and shower rooms into a common exhaust vent fan serving the kitchen and pantries, this being done by means of a series of ducts in the attic space.

Of course there is an attendant operating charge with the positive system, but assuming, for example, ten changes of air an hour for the room shown herewith at an average power rate and covering a six- to eight-hour period of fan operation per day for eight months, the annual operation cost would probably not exceed $180 or $200 for the service.





A Typical Well Planned and Ventilated Locker Room

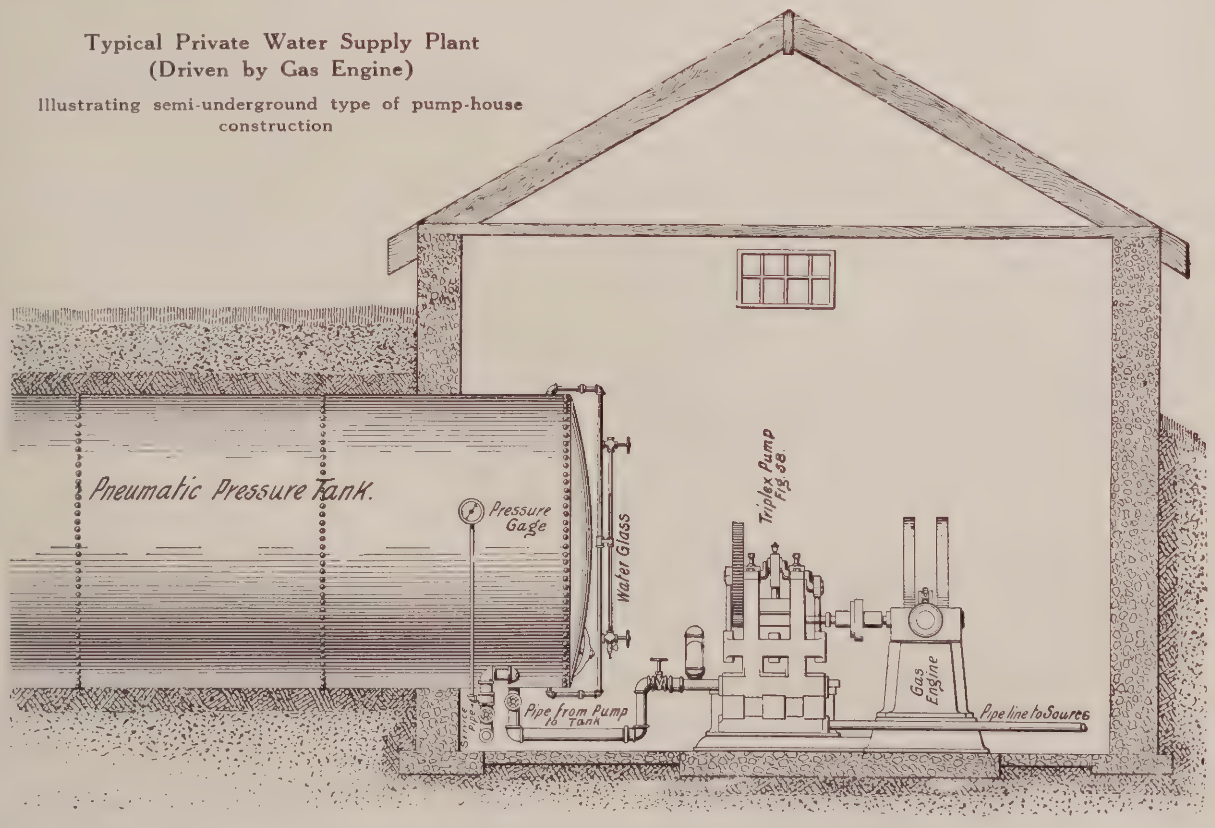
Golf Club Water Supply

By DUNCAN SHAW, *Mechanical Engineer, New York*

WATER supply is unquestionably the most important utility to be considered in the planning, designing and construction of a modern, complete golf club. Not only should it be thought of as a source of water for drinking, cooking, shower baths, greens sprinkling, fire protection and sanitary facilities, but it has an underlying economic importance that is often overlooked. By far the larger number of golf clubs are dependent for their ultimate growth and prosperity on the members that they are able to attract. The playing members' first consideration is the condition of the course and greens. In the proper maintenance of turf on both the fairways and greens water is unquestionably the most important factor.

The sources of supply for a private water system may be classified under three general headings: brooks, ponds (either artificial or natural), and driven wells. In all cases the water for irrigation should be drawn if possible from some surface source, such as brook or pond. Well water is very likely to be too cold for good turf irrigation, and it may in addition contain harmful mineral ingredients. Warm surface water is an ideal irrigating agent. Of course if the irrigation water is drawn from some surface source, an additional supply must be provided for house use, to avoid the danger of contamination. This separation of the pumping plant into two units is very often done. If possible the source of supply for irrigating water should be located approximately at the center of the course. This will materially reduce the length of the pipe runs and, as a consequence, the cost of installation. It can be assumed as a general rule that the underground piping installation will constitute the major portion of the original investment.

If it becomes necessary to create an artificial pond or lake by the damming of a brook on the course, careful planning will enable the course architect to make it a distinct addition to the scenic beauty of the club property. In the complete absence of any source of surface supply adequate to the club needs, an artesian well is the only remaining water source available. Such wells cover a wide range of type, depending on the geological formation of ground in the locality in which the club is situated. The well may be a so-called gravel well, of rather moderate depth and comparatively inexpensive to drive, or on the other hand the location of water may necessitate a deep artesian well driven into rock. In the latter case the cost will be considerably increased. The determination as to the type of well and its location on the property is again a question for expert decision. A good deal of the gamble in this connection is, however, eliminated by the practice of driving small test wells to afford a prior determination



Typical Private Water Supply Plant
(Driven by Gas Engine)

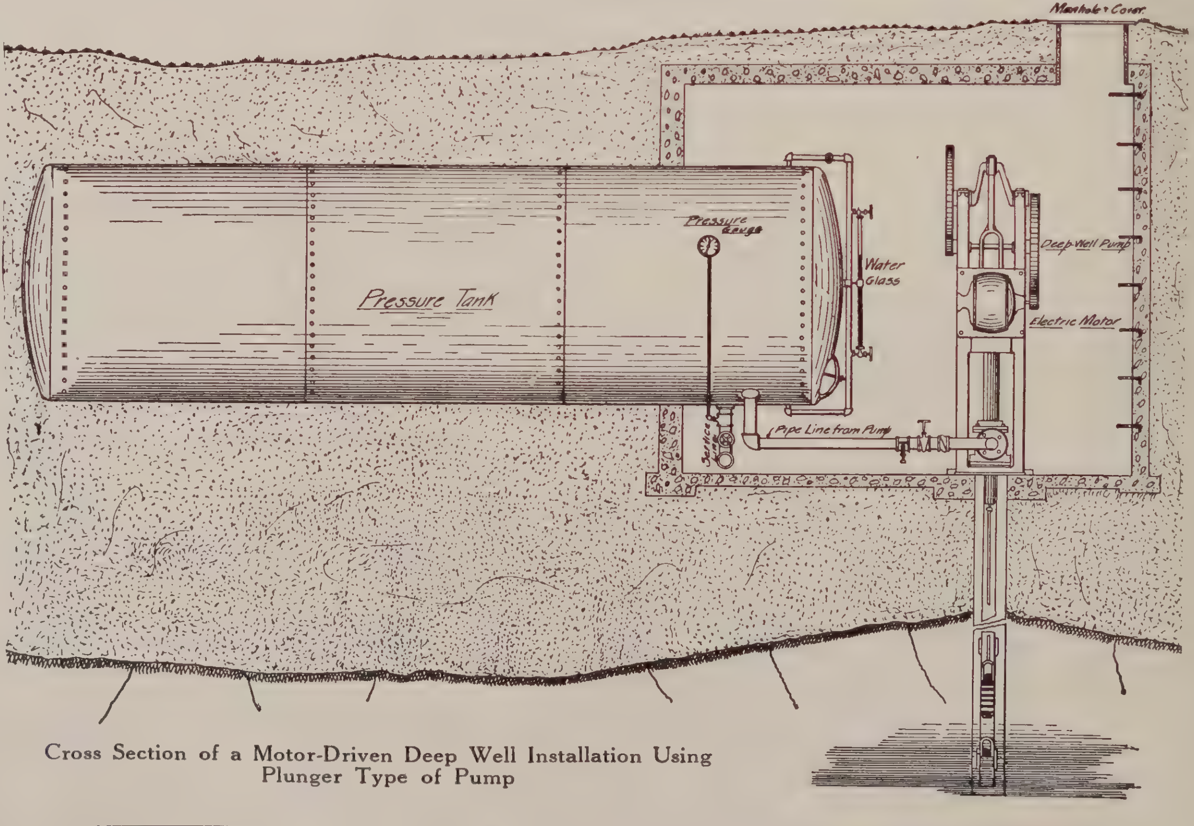
Illustrating semi-underground type of pump-house construction of the location of the possible water-bearing strata.

Having finally located and decided on an adequate and proper source of water supply, the next general problem confronting those concerned with the golf club water system is choice of the mechanical equipment. This equipment falls naturally into four general subdivisions: motive power; pumping machinery; storage facilities, and pipe lines and appurtenances. The motive power must be given first consideration, since its choice is largely predicated on local conditions, and its type materially limits the range of usable pumping equipment. Under the heading of motive power the general types to be investigated cover electrical motors, gasolene engines and fuel oil engines. No consideration will be given in this article to such natural sources of power as waterfalls, although such power should be used wherever possible. They are, however, of such rare occurrence that they are not of general interest. Whenever the availability of power transmission lines makes it possible, electric motor-driven pumping equipment should always be used. Resultant maintenance costs will be lowered, expert attention necessary will be reduced to the minimum, and full automatic operation simplified.

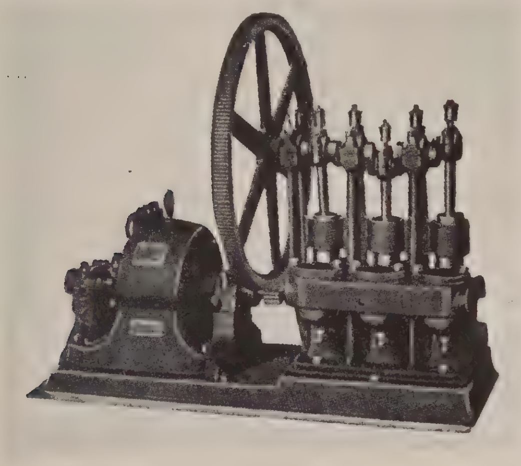
Lacking power mains within a reasonable distance of the club, the choice of necessity is narrowed down to the use of either gasolene or fuel oil engines. For small or moderate sized plants gasolene engine equipment generally proves most desirable because of its lower initial cost as compared to that of fuel oil engines. There is no necessity, moreover, for having a highly trained engineer such as is required to operate certain types of fuel oil engines. An analysis in the case of some larger plants may indicate that both the greater initial cost and greater personal attention required by a fuel oil installation will be more than offset by the materially higher efficiency of this type and its resultant fuel economy in ordinary operation.

The decision as to pumping equipment will automatically narrow itself to one of three general types, —suction pumps, deep well pumps, and air-lift pumping equipment. It is possible to use a suction pump only when the water is drawn either from a surface supply or from a well in which the water level while pumping rises naturally to within approximately 20 feet of the ground surface.

There are two general subdivisions of suction type pumps,—the centrifugal type and the plunger type, —the latter most commonly seen as a triplex or three-plunger unit. When electric power is available there are many features to recommend use of a centrifugal unit. It is an extremely simple affair mechanically, consisting of an outer shell in which revolves an impeller. The water is picked up at the center of the impeller vanes and thrown by centrifugal force to the outer periphery, where the discharge is located. The absence of reciprocating parts makes for long life and low maintenance cost. There are, however, some disadvantages to be considered. Unless the water supply is at a point higher than the pump, permitting water to flow to the pump by gravity, the suction must be filled with water before the pump will operate. This operation is known as "priming." In other words, a cen-



Cross Section of a Motor-Driven Deep Well Installation Using Plunger Type of Pump trifugal pump cannot of itself pick up a suction lift. As a class centrifugal pumps are also of much lower efficiency in the smaller sizes than plunger pumps of similar capacities. The current consumption is therefore materially increased, which is reflected in larger power bills. Again, it will be noted that the final decision involves a balance of judgment based on several factors. Broadly speaking, the triplex plunger pump is by far the most popular suction pump in installations of this general nature.

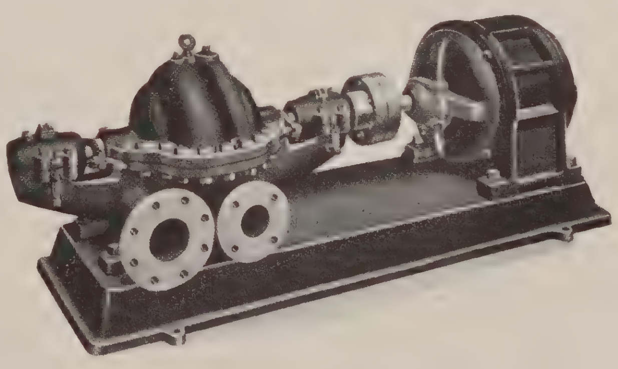

Motor-Driven Duplex Plunger Pump

Before leaving the subject of suction pumps it might be well to say that in all cases where the water is taken from a surface source of supply, a so-called suction chamber should be incorporated in the plant design. This is generally a concrete cistern-like structure into which the water is diverted from the main source and from which the pump suction leads. Its chief advantage is that it permits the pumping of only the warmer surface water at temperatures best suited to grass stimulation. This object is accomplished by placing a baffle plate in the lead channel built from the pond or lake into the suction chamber, the baffle plate being raised until only the surface water flows off.

In the absence of surface water supply or a driven well in which the natural underground pressure lifts the water to within suction distance of the pump level, the so-called deep well type of pump must be used. Both reciprocating and turbine type pumps are available for work of this nature. The reciprocating type consists of a pump head erected over the well with a pipe (known as a drop pipe) running from the pump head down into the well to whatever depth is necessary, and carrying at its lower end a pump cylinder. This cylinder is equipped with valves operating on the same principle as a suction pump. The plunger is moved up and down by a long rod, joined together in sections, to which is transmitted the reciprocating motion of the crank on the pump head above. This rod is generally made of octagonal ash in order to reduce the strain on the pump head through its added buoyancy. Reciprocating deep well pumps of this nature are built in both the single-acting and double-acting types. The single-acting pump is equipped with one plunger, lifting water only on the up-stroke. The double-acting type, on the contrary, has two plungers with independent rods, one inside the other, whose strokes overlap, thus more nearly approaching continuous flow. The double-acting pump, of course, is less subject to vibration because of its more steady load, and it is generally much more efficient. A more complex mechanical construction is, of course, entered into with a higher cost per gallon output.

Of more recent development in deep well pumping generally is the so-called deep well turbine, which is becoming more widely known and adopted each year. In essence it is a centrifugal pump with several stages in series suspended vertically in the well at a depth required by the normal water level. While somewhat less efficient than the reciprocating type pump, its first cost is considerably lower. The mechanical construction is very much simplified, and as a consequence less expert attention is required. Unless use of a belt drive is resorted to, it is not ordinarily practicable to use a deep well turbine installation where electric power is not available, since this type of pump requires high rotative speeds, whereas the gasolene or crude oil engines of the heavier types are comparatively slow speed units.

Air-lift pumping equipment has had some popularity in the past because of the comparative simplicity of the installation. A typical plant consists of an engine or motor-driven compressor with an air receiver from which air is forced through a perpendicular pipe into the well. By an admixture of air and water the latter is raised to the surface with no moving parts in the well. Such an installation has, however, a very low overall efficiency, and chiefly because of this fact the modern tendency is away from use of this particular type of equipment.


Motor-Driven Centrifugal Pump

The structure in which the pumping equipment of a golf club is housed is generally the subject of considerable attention by the architect, since in most cases it is located in a more or less conspicuous position on the club grounds. With a moderate amount of planning it can be made an object of considerable architectural interest. In a few notable cases architects have gone to some length to achieve this result, such as for example in designing the pump house in the form of an old Dutch windmill. Very often the pump house is either of stone or concrete construction to assure permanence and low upkeep. In the majority of cases it is also considered wise to construct the pump house partially underground, with the pump floor 4 to 5 feet below the normal ground level. The principal reason for this is to eliminate any possibility of the pump's freezing during the winter months.

It is standard practice in modern water supply engineering to provide pumps of a much larger capacity than the normal steady demand. An accumulated water reserve is then kept in a storage tank. This provides insurance against lack of water during a temporary breakdown, and it also gives more constant pressure conditions. There are several types of tanks in more or less common use. The older practice involved the erection of an elevated tank, either on high ground or on an erected tower. The obvious disadvantage of high initial cost and upkeep, together with scenic objections, has gradually tended toward the elimination of this type of storage. Present practice, in most cases, dictates the use of what is known as a hydro-pneumatic tank. These tanks are built of steel, either riveted or welded, of a cylindrical form and of a capacity determined by the demands on the plant. In almost all cases the tanks are buried in the ground adjacent to the pump houses, with the ends extending inside. On the exposed ends are mounted the pressure and water level gauges. Such underground tanks assure an even temperature of water. The water is pumped into these tanks, compressing the original air volumes into cushions at the tops of the tanks. The tanks are generally pumped up to a predetermined pressure, and a considerable volume of water may be drawn off for use, the pressure being supplied by the compressed air cushions. These tanks, as just said, are much used.

On the larger installations, involving use of hydro-pneumatic tanks, a separately driven air compressor of small capacity is always installed. This serves to replenish the air supply in the tank and thus prevent water logging, and it also permits a larger drawoff in case the pump is out of service. By this means the entire tank capacity is available for use in an emergency.

A hydro-pneumatic tank installation lends itself admirably to complete automatic control, by means of a simple pressure-operated switch, when electric motor drive is used. The pumping equipment may be started at a fixed minimum pressure limit and stopped at a fixed maximum pressure limit. Automatic control is, of course, feasible and is often used with the open type elevated tank by means of a float switch, but the installation is not as simply made or maintained. An additional advantage of the closed type pressure tank that merits consideration is its aërating effect on the water. A considerable mixing of air and water is assured, with the result that the water is not only made more potable but undoubtedly an appreciable sterilization is had.

The tank capacity for any given installation is, of course, dependent on the normal water demands, and it may be accepted as a rough working rule that a one-day supply from the tank should be assured when operating with gas or oil engine drive to guard against a mechanical tie-up. The tanks may be somewhat smaller with motor drive, since the possibility of there being any lengthy breakdown is considerably reduced.

The subject of the pipe distribution system for golf course irrigation is one that should be approached with a good deal of careful thought. This part of the water supply installation involves, as has been previously said, the major portion of the plant investment. As a result, pipe sizes and layout must be carefully planned by an expert in order to keep down the expense as much as possible. With the pump house at the center of the course, the general practice is to run a large main with ample sizes of sub-mains which again branch to laterals, forming what is known as a herringbone system. In all branch-offs it is wise to use Y's rather than T's to reduce pipe friction as much as possible. The pipe sizes are determined by the capacity carried and the pressure desired at the sprinklers. On an average installation the pipe of the network will gradually decrease from a 4- or 5-inch main to 1½-inch laterals. All laterals should be provided with gate valves in order to permit segregation during repairs. The submains should also be so equipped.

Drainage of the entire water system must be carefully provided for in order to prevent freezing and consequent broken pipes and fittings. As many lines as possible may be so graded as to drain back to the pump house. Drips should then be installed at all other low points over the system. Ordinarily the pipe runs on a course are laid in shallow trenches.

As to the kind of pipe to use, this is very often a subject of considerable debate, since there is a wide price difference between steel and wrought iron pipe. However, it cannot be too strongly emphasized that conditions of the installation and the chemical properties of the local water supply should be carefully studied before selecting pipe.

It does not seem wise in this article to go into details as to irrigation appurtenances. Sprinklers and sprinkling equipment cover a wide range of type and form a fitting subject for a rather broad consideration. It is perhaps sufficient here to say that the soil conditions of the individual course, as well as the maintenance fund available for turf irrigation, will be the deciding factors in the choice of this equipment. Securing an ample supply of water for both fairways and greens, as decided by an irrigation expert on the ground, should be the ultimate aim. Whatever initial and maintenance expense may be involved will, in the light of past experience, be generally very profitably expended.

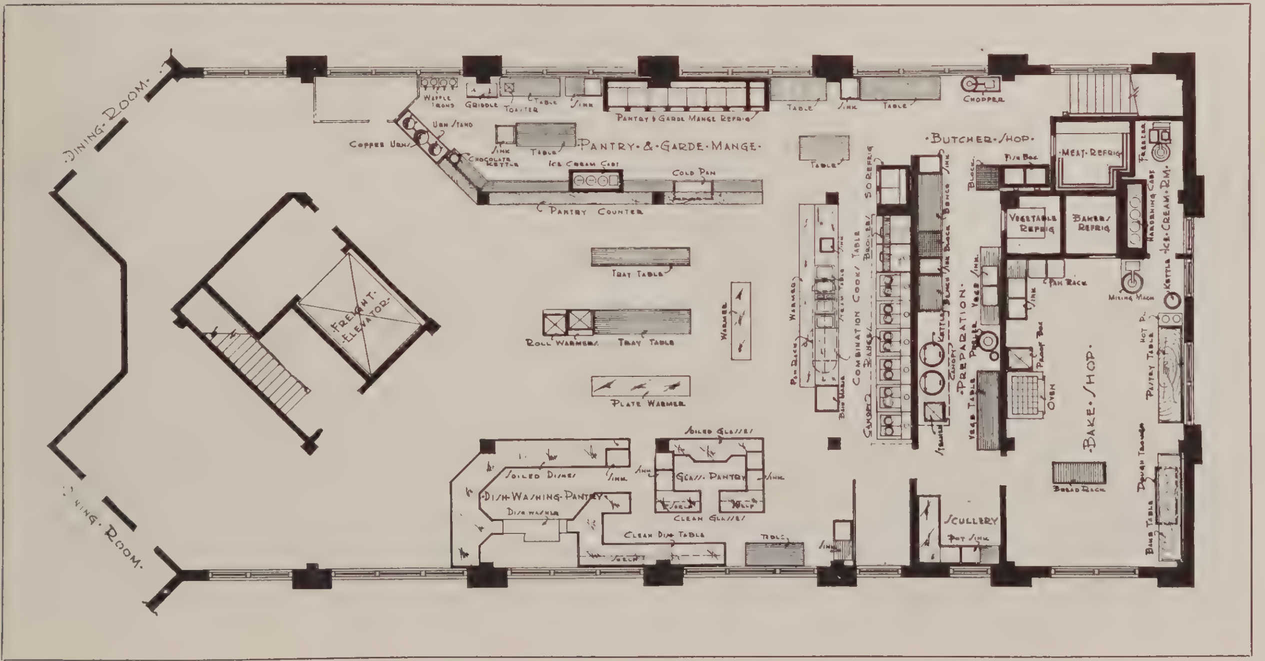
Planning for Food Service

By ALBERT E. MERRILL
Equipment Engineer, Chicago

WITH the development of club life, and especially the outdoor country club to which men are attracted for both the social side and the opportunity for gaining needed exercise, there have been promoted almost numberless organizations surrounding every city, even of medium size, and naturally there has been a wide variation in the financial resources back of them. These clubs have utilized a large proportion of the available farm land, which has been converted into golf courses, and the expense connected with the laying out of an 18-hole course has often necessitated the alteration of an existing building or the erection of a hastily improvised club house at the start. In many instances these buildings will be utilized for several years, and consequently preparation has to be considered for more or less permanent equipment. The general tendency in a large number of clubs is to reduce below what is practical or even possible the expenditure in kitchen and dining room equipment, with the result, judging from an examination of the average club kitchen, that standardization according to modern methods of food preparation and service is hardly possible. However, all of them have in view permanent homes fully equipped, and in the original purchase consideration is generally given to such equipment as may be used in the scheme later to be adopted.

Fraternal organizations often take the lead in country club development, and as most of these organizations are familiar with banquet service only and do not attempt a daily service, they are likely to view the club situation in a similar light. It is natural that Saturdays and Sundays should furnish the main demand for the week, and the tendency has been to eliminate everything that would aid in giving balance and order to the daily food service.

After studying the requirements of several smaller or more or less struggling clubs, both in the east and central west, it is found that all seem to be united in the desire to establish a stand-up service very similar to that rendered in a "coffee shop," where the golfers may come in and rapidly secure the best of sandwiches, both hot and cold, hot coffee, pastry, and possibly some kind of dessert. This has the double advantage of requiring very little service, which is an important factor with the country club, and being speedy. This also will be the only paying department of the food service. As long as these rooms seem to be universally in demand, it would be well to originally equip them with complete and attractive service, consisting perhaps of a small soda fountain, where a limited number of cold drinks and ice creams could be served at all times, a "luncheonette," which would furnish a bowl of hot soup, coffee, and possibly tea or chocolate, together with one entree or roast for making hot sandwiches. The counters should be sanitary, similar to those in the old fashioned bar, and about 42 inches in height. These could be built either of marble, glass or metal, decorated in keeping with the decoration of the room, to have black glass tops either decorated or plain and to contain the various fixtures just suggested arranged



Main Kitchen Plan, Olympia Fields Club, Matteson, Ill.

in an orderly manner for easy and convenient service. If possible, such a counter should be located in front of a slide opening into the kitchen proper, and the back wall should be supplied with an ice chest and ice cream cabinet and means for storing quantities of ices, ice creams and cold drinks.

The size of such a room would naturally vary with the size of the club, but should, if possible, open onto a veranda where tables and chairs are provided for those who desire to sit down while they eat, and the room itself should have several high tables with glass tops at which club members may stand while eating their hasty repasts. The dining rooms of even the smaller clubs seem never to be large enough to take care of the peak flows, and the problem seems best handled by utilizing the greater portion of the main floor for this purpose, dividing it into rooms which may be cut off for other purposes when not so required and fitted with doors leading out to a broad veranda which should surround the entire building and which may be fitted with tables and chairs to meet the summer demand. Naturally, in winter time the club either closes entirely or the requirements are very small, and the smaller space would fully answer.

In one of these smaller clubs the essential equipment would consist of a battery of ranges 6 to 8 feet in length, a broiler, steam table 6 to 8 feet in length, a cook's table, pantry refrigerator at least 7 feet long, a meat block, butcher's bench, vegetable sink, dishwashing pantry including a small dishwasher, and a large storage refrigerator, this preferably located in the basement where bins for storage of dry and canned goods are also supplied. The pantry service is very meager, generally consisting of a counter, a small ice box and a single coffee urn. In the smaller clubs the waiters do not enter the kitchen at all, but their service is secured through a slide opening into the kitchen proper, and the washing of dishes is handled in a separate room to which the waiters come directly and deposit the soiled dishes, silver and glass.

We shall now consider the requirements in a larger institution, where demands even in excess of those of the largest hotel, cafe or club are not unusual. Even in the larger clubs the self-service idea seems to be the most practical, particularly from the members' standpoint, and we find complete cafeterias with separate kitchens which supply the club members who desire to eat hastily at the noon period. In addition to this, the larger institutions are now supplying cafeterias where caddies, chauffeurs, employes of the guests, and others who do not belong to the clubs proper are fed, and who in this way do not mingle with the club members themselves. All these cafeterias should be fitted with the most sanitary equipment, consisting of metal frame counters with metal or glass panels,

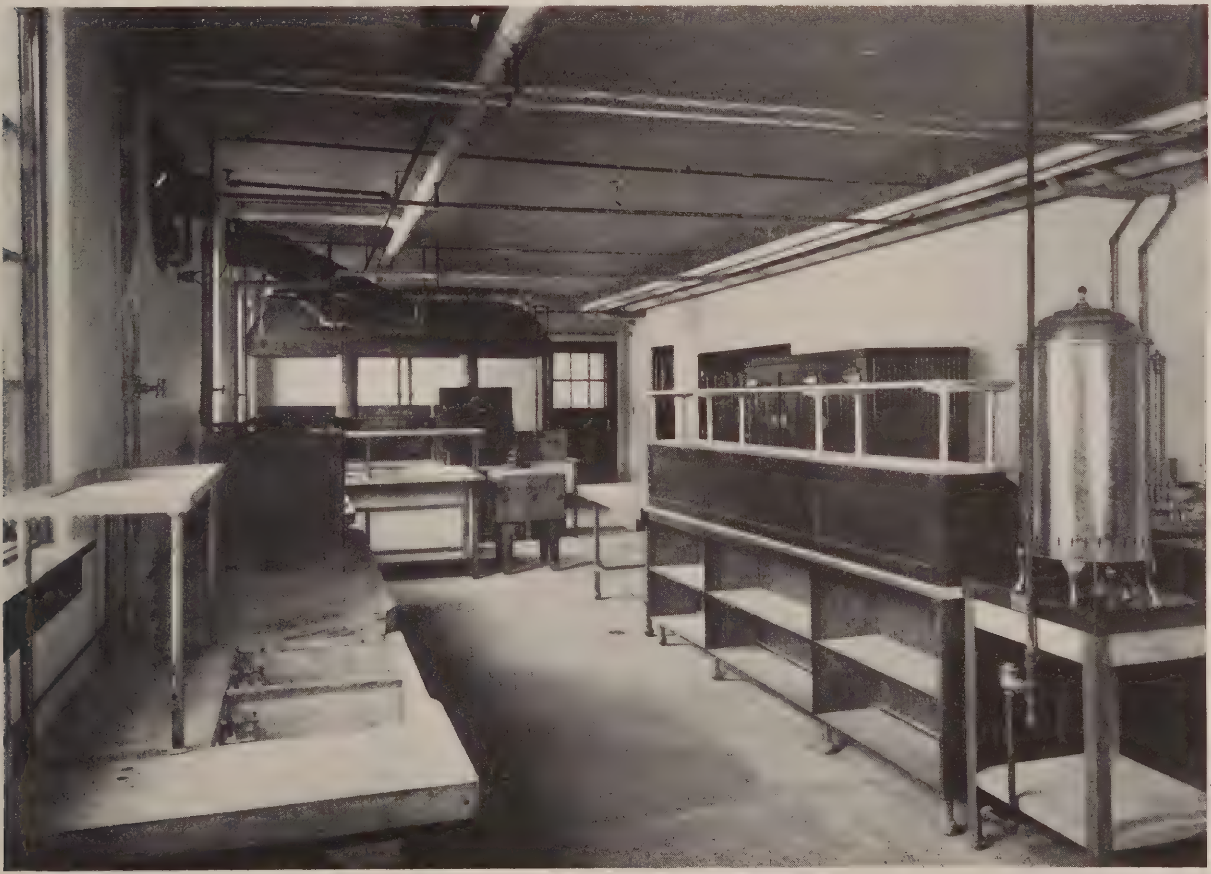
Kitchen in River Oaks Country Club, Houston, Tex.

glass tops and metal fixtures throughout, salad pans, ice cream cabinets, urn stands and cup warmers, silver boxes and steam tables. The exposed parts of these fixtures should be entirely of approved metal over heavy steel with heavy copper pans. The ice fixtures should be insulated, and all fixtures should be mounted on 6-inch sanitary legs. These cafeterias and counters will vary in length from the shorter units, such as we find in high schools and industrial institutions, to the complete commercial cafeterias found in the larger cities.

If we turn to the main dining rooms and kitchens we shall also find them completely equipped with every modern device for food service and preparation, including the separate departments for silver cleaning, dishwashing, baking, the work of the scullery and vegetable steaming room, etc. Probably, if anything, the club kitchen differs from that of the hotel in having a larger proportion of plate warmers and tray stands than would be found in the latter, and this is due to the more limited number of servants and the greater difficulty in securing them for the short periods that a heavy demand for such service exists. In the type of equipment which is used in the club kitchen the tendency, unfortunately, has been toward purchasing the least expensive that would give satisfactory life and service. This is a mistake, since the equipment in the kitchen itself should make it a show place, and the more attractive it is made at the start the greater the probability of its being kept and maintained so.

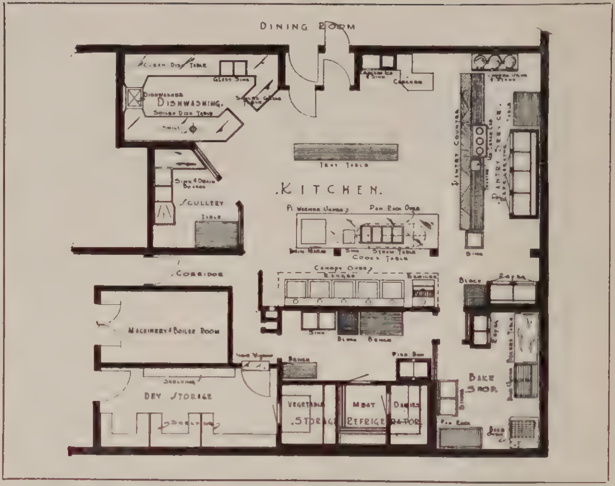
Wherever the club is so located that gas is available, gas ranges are preferable, but in many localities gas is not piped, and the club is compelled to use electricity as fuel. With the development of a special unit which encloses the heating element in a metal tube, there has been introduced a type of cooking equipment that is lasting and serviceable, and the electrical heavy-duty equipment has really come into its own. This may be used with equal effectiveness in range ovens, range top plates, broilers, cake griddles, waffle irons, steam tables, coffee urns, etc. It has been tried out and proved satisfactory, and provided that a fairly uniform voltage is assured, the user may fear no unpleasant experiences with electrical equipment so constructed.

Steam tables, coffee urns and bain marie pans should, wherever possible, be heated by steam. The great advantage of sectional steamers, steam jacketed stock kettles, etc. in food preparation makes it advisable where steam is not available to install a separate coal fire boiler for this purpose. In special equipment the large club needs a power dishwasher, a mixing machine, ice cream freezer, meat chopper, meat slicer and a meat grinder. Waffle irons, cake griddles and toasters, all heated by electricity, should be provided in every club pantry. The roll warmer is a valuable and necessary fixture for service.



Kitchen in Broadmoor Country Club, Indianapolis

Kitchen in Madison-Lakelands Golf Club, Madison, O.

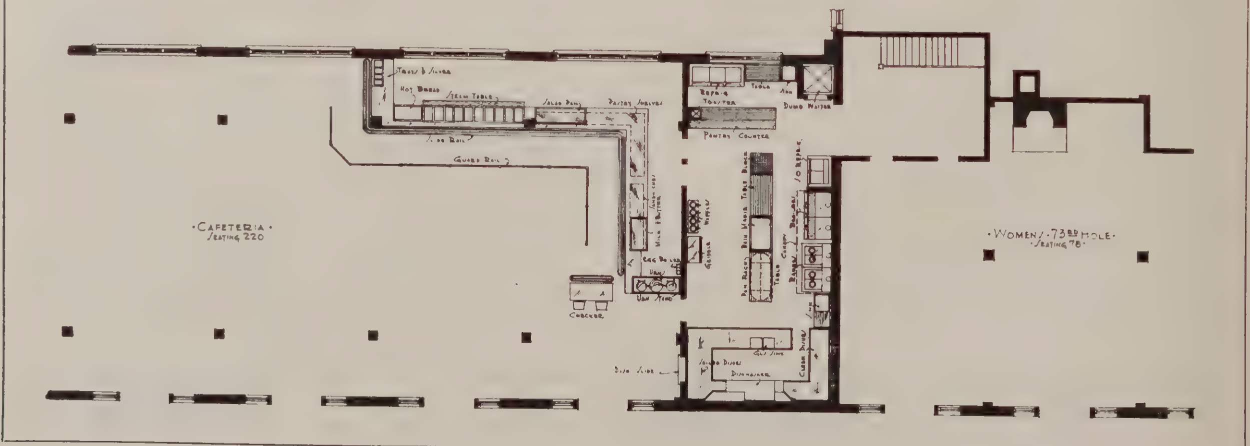


Kitchen Plan, Hollywood Golf Club, Hollywood, Fla.

As most clubs are more or less distant from a city, a completely equipped bake shop is essential. Ice boxes should be plenteous and of the best construction. Sheet cork insulated walls, cork and cement built-in construction are the most serviceable and sanitary. If possible coil space should be arranged overhead for all service and storage boxes, as it is taken for granted that no club of any size would be without an ice machine for mechanically refrigerating all service boxes, ice cream hardening cabinets, prepared ice water for the building and for manufacturing a limited amount of ice for use in drinks and for other purposes.

If the dining room permits, or in other words, if a building is being designed for club purposes rather than an old building being made over, the center should be left open for dancing space during supper hours. There seems to be a return wave of dancing in all parts of the country; nobody is now too old to become an efficient dancer, and the absence of space for this purpose might make for dissatisfaction in any club. A certain number of private dining rooms are equally essential, since most club members find it necessary to combine business with pleasure and to invite their business acquaintances to the club to enjoy a meal and at the same time discuss matters which it would not be advisable to discuss in a main dining room. One large private room should always be available for parties.

In general, the same conditions hold true in reference to clubs as to hotels. The tendency is to cut down the kitchen space to half or less than half of that which is necessary and to select a quality of equipment which is not lasting and a quantity which is inadequate to take care of the maximum demands of the dining room. In the club it is more essential than in any other type of kitchen that equipment be lasting to adapt itself to the very meager requirements of week days as compared with the very large demands that would be made on Saturdays and Sundays. At best, the club kitchen must be operated at a loss, and every consideration should be given to eliminating every bit of unnecessary service and making it possible for each employe to operate in the most efficient manner. This can partially be accomplished by having all of the equipment as automatic as possible, providing all the labor-saving machines that money can buy, using mechanical refrigeration even in the smaller clubs, and electrically-driven and heated apparatus where possible.



Food Service Arrangement, Olympia Fields Club, Matteson, Ill.

Sewage Disposal for Isolated Golf Clubs

By A. E. HANSEN, *Hydraulic and Sanitary Engineer, New York*

THERE are at least three general conditions which should be particularly borne in mind and which require special care on the part of the designer of sewage disposal systems for golf clubs.

The fact that the golf players may roam all over the club grounds makes it imperative that the sewage should be disposed of in a manner that will not offend the senses of sight and smell, and that will not produce soggy ground, soaked with sewage and perhaps indented with small pools of liquids into which unsuspecting players may step or drop their golf balls. This condition is aggravated by the additional fact that golf clubs generally produce an unusually large quantity of sewage, caused principally by the almost continuous use of shower baths in different parts of the club house buildings.

The third factor which should be borne in mind by the designer of a sewage disposal plant for this type of institution, is the fact that the golf or country club house is usually partially open in the winter for members and guests, and that under this condition the amount of sewage produced is materially less than that of the summer months. Special provision should be made so that the sewage disposal plant may be adapted to the small as well as to the larger flow, depending on the season of year.

It is necessary to decide on the ultimate disposal of the sewage before the treatment plant can be designed. Sewage will be discharged after purification, either directly or indirectly into some water course. By "direct discharge" is meant the flow of treated sewage through a conduit directly into a water course. By "indirect discharge" is meant the flow of treated sewage either over or through the soil into a water course. In most instances, especially in the East and in some of the Middle Western states, the discharge of sewage, whether treated or untreated, is subject to the approval of state Departments of Health. Sometimes these departments do not exercise their control over the design of disposal plants which have indirect discharge into the water courses of the state. It is always advisable for the designer to submit the plans for any sewage disposal system to the state Department of Health for its approval, whether the plans provide for direct or indirect discharges, for the reason that such official approval may, sooner or later, be most valuable legal evidence of competent design in case claims are made by other property owners for damages due to contamination of surface or sub-surface waters. The state health departments have also accumulated in their records very valuable data on the sanitary qualities of the waters of the state, on the absorptive qualities of various soils, on the dangers of well or spring contamination, and on such other matters as may properly come under their jurisdiction, and which may affect the design and operation of sewage disposal plants.

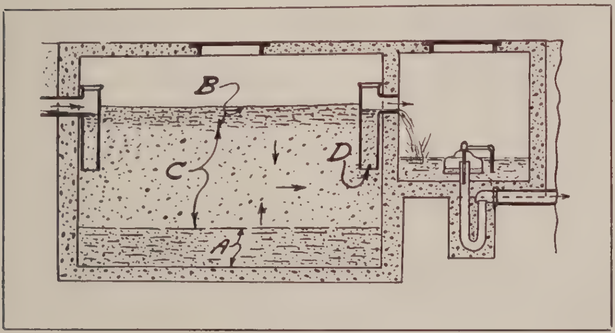


Fig. 1. Typical Settling Tank

The treatment of sewage, whether from golf clubs, institutions, residences, or municipalities, may be properly divided into three successive steps: clarification, oxidation and disposal. It is unfortunate that the word "disposal" is so frequently misapplied to mean "treatment." "Disposal" means the actual final disposition of the liquids and solids which together form sewage, after it has undergone purification by "treatment;" that is, an outfall sewer into a stream or mere cesspool is properly a "disposal" plant, but it could not by any means be called a "treatment" or "purification" plant.

Clarification. The clarification of sewage for country clubs is usually done by means of tanks or screens. Screens have been used only for large sewage treatment systems, particularly for municipalities, and are therefore not necessary to consider in this article dealing specifically with club houses.

The principle of clarification by tank treatment is that of settling the heavier particles at the bottom of the tank, and of floating the lighter solids at the top. The liquid occupies and passes through the space between the "sludge" at the bottom and the "scum" at the top.

The tanks which are most frequently used for institutional or club treatment plants are those which are technically known as "single-story horizontal flow," "settling" or "septic" tanks. The term "settling tank" or "sedimentation tank," as differentiated from the term "septic tank," means that the former is only of sufficient capacity to permit the solids to separate from the liquids without creating conditions of putrefaction, while the latter (septic tank) is of sufficiently large size to retain the sewage long enough to become putrid or "septic." Septic sewage is black and offensive; fresh settled sewage is milky and inoffensive to the smell. Clarification tanks for golf clubs should not be of such sizes that the sewage effluent from them is in a septic state. It will be seen that in

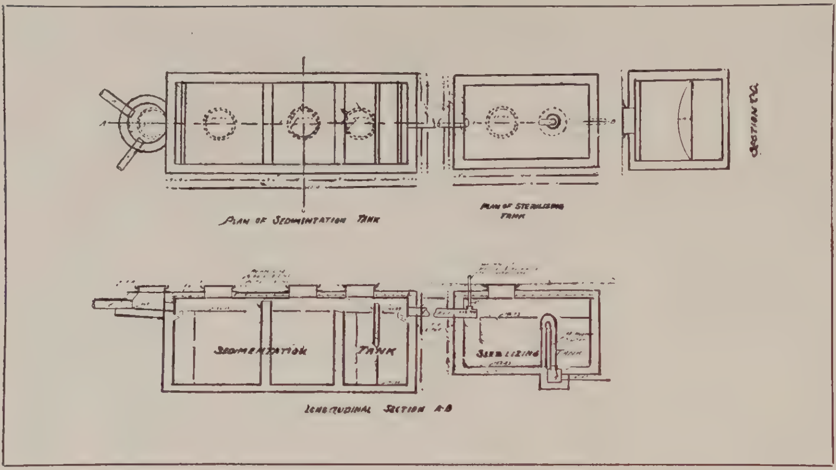


Fig. 2. Rectangular Settling Tank with Concrete Roof

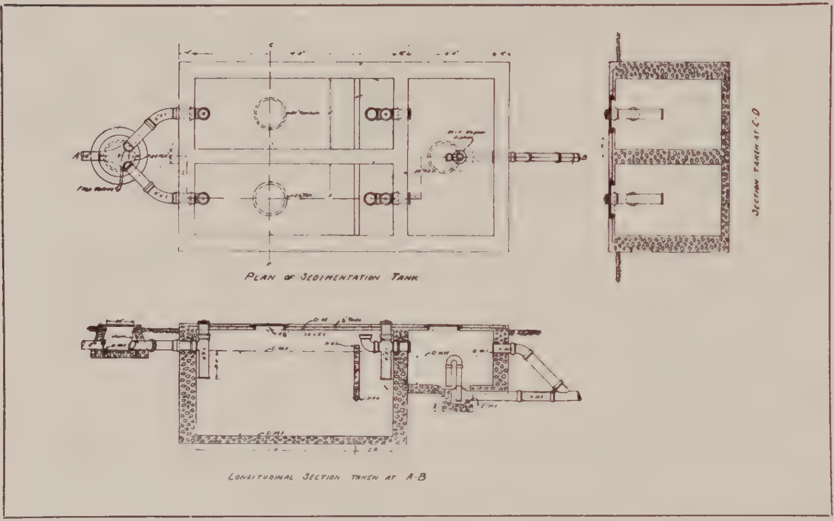


Fig. 3. Rectangular Tank in Two Units

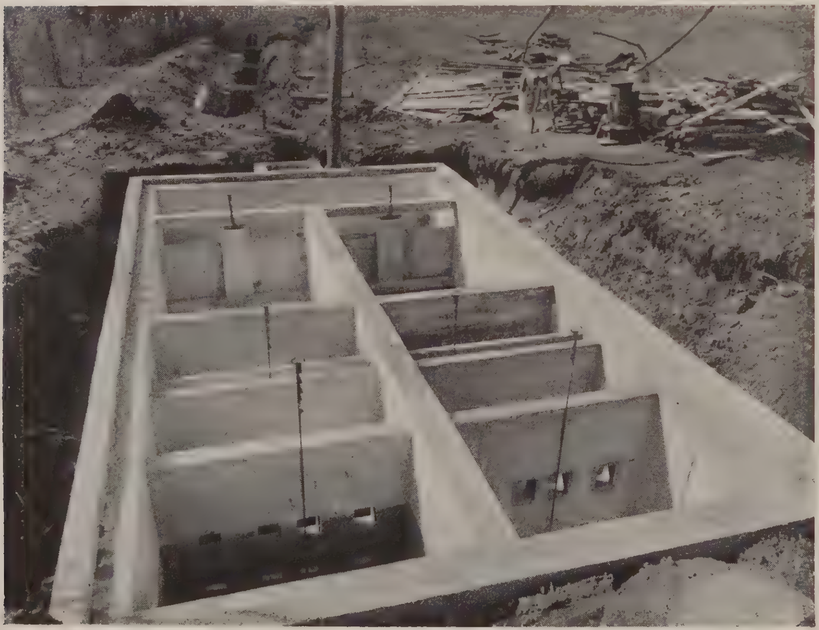


Fig. 4. A Large Type of Sewage Tank

common parlance the term "septic tank" is a misnomer and is frequently used to mean "settling" or "sedimentation" tank. This explanation is given so that the reader's attention is called to the necessity of designing golf club settling tanks for use in summer and winter. A tank designed for summer use will be too large for proper operation during the winter and will probably deliver a septic putrid effluent. The golf club tank should be designed properly in two units, both together for use in summer, and one only in winter.

The accompanying Fig. 1 indicates the principles of the settling tank. The arrows at the tees show the inlet and the outlet from the tank. "A" shows the sludge at the bottom; "B" the scum on top; "C" the liquid between the two. The sewage flow enters on the left and passes out through the outlet tee branch at "D." When the sludge "A" decomposes, it will produce gas bubbles which rise and carry along with them small particles of sludge. The horizontal flow of the liquid tends to float these particles toward the outlet at "D" and over into the adjacent tank, called the siphon or dosing tank, and thence into the subsequent treatment units. If a tank of this type is designed of too ample capacity or is not cleaned sufficiently often, the sludge will become septic. Since the purpose of a settling tank is to clarify the sewage by separating the solids from the liquids to the greatest possible degree, a septic sludge which produces gas and causes a violent disturbance of the sludge, with consequent liberations and even discharges of sludge particles into the effluent, is most undesirable. For this reason the frequent cleaning of settling tanks is necessary, especially where sewage undergoes further treatment by filtration or soil absorption. It has been said frequently that the cleaning of settling tanks once in from three to five years is satisfactory. Such is not the case.

Where the clarified sewage from settling tanks is subjected to further purification by filtration or soil absorption, settling tanks should be cleaned regularly, at least once a year, and if the tanks are in use for the entire year, they should be cleaned once in the fall and once in the spring. Such care will prevent expensive removal of clogged subsurface disposal tiles and of sand filter surfaces.

Tanks may be constructed in either circular or rectangular form, as shown in Figs. 2, 3, and 5. Fig. 2 shows a rectangular settling or sedimentation tank, with a reinforced concrete roof, an inlet gutter, three baffles, and an outlet gutter, discharging into a siphon tank which is also used as a sterilizing tank, the sterilizing agent being liquid chlorine in solution, which is fed into the tank inlet. The function of the inlet and outlet gutters is to provide distribution over the width of the tank. The purpose of the baffles is to retain the sludge and the scum. Manholes are needed to remove sludge and scum.

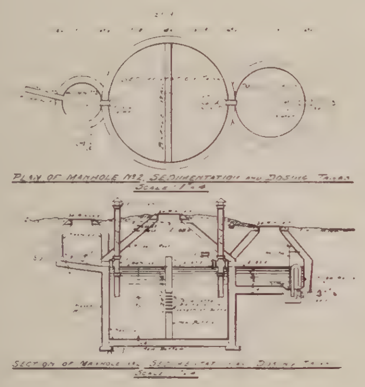


Fig. 5. Circular Brick Tank

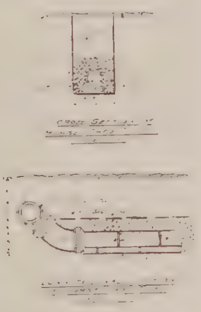


Fig. 6. Horseshoe Tiles

Fig. 3 shows a rectangular tank of concrete, having two units, both together for summer and one for winter operation. The inlets to the tank units are controlled by flap valves. In this instance the estimated winter sewage flow was about 50 per cent of the estimated summer flow. The intermediate baffles are omitted in this tank, because investigation showed that the probable amount of solids, such as water closet discharges, and of scum, such as grease, would be less than the sludge and scum expected in the installation represented by Fig. 2. Grease traps permit omission of baffles.

A larger sewage tank installation is shown in Fig. 4, the inlet end being at the bottom of the illustration, the sewage passing through the apertures in the first baffle, then under the second baffle, up through the narrow space between the second and third baffles, over the third baffle, and down into a space beyond the fourth baffle, which was filled with broken stone as a roughing filter. The valve rods shown in the illustration control sluice gates at the bottom for drawing off the sludge. Fig. 5 shows a circular tank, built of brick masonry, cheaper in construction than the rectangular tanks, but less efficient, though it suffices for many clubs.

The preceding remarks refer to single-story horizontal flow tanks. Other tanks have been developed for clarification of sewage, such as the "Imhoff" or "Emscher" tank (see Fig. 15). The perspective view of this tank shows its general design. It is a two-story horizontal flow tank, the upper story being the "flowing through" chamber for sewage, the lower story being a "sludge" chamber. The sewage enters at the top marked "Inlet," passes through the upper chamber and leaves at the opposite upper end of the tank, marked "Outlet." In passing through this upper chamber, the solids settle and fall through the slot at the bottom of the upper story, into the lower story or sludge chamber. The solids are removed from the sludge chamber by gravity through the sludge pipe shown. To my best knowledge this type of tank has not been used for golf club sewage disposal or treatment plants. It is quite expensive to build and is not particularly well adapted for comparatively small sewage treatment plants, for the reason that it has a tendency to boil over at the gas vents when used with unmacerated, fresh sewage, such as would be received from a near-by club house.

Fig. 16 is an illustration of still another type of tank, designated as the "Byolitic Tank," and combined with an Imhoff or Emscher Tank. The Byolitic tank is an upward flow, single-story tank, in which the sewage enters at the top and flows downward through a vertical, central pipe to the bottom, thence upward to peripheral effluent gutters. The combination of these two tanks gives an excellent effluent and can be built at reasonable cost where an exceptionally efficient clarification plant is desired.

Attention was called in the earlier part of this article to the unusual condition of exceptionally large shower bath discharges from golf club houses. This practically clear water should not be allowed to enter a settling tank of any type. It will result in the carrying over of sludge particles into the siphon or dosing chamber, clogging the soil or filters. This water should be by-passed around the settling tank into the siphon chamber for further treatment, or separately fed to a rapid sand filter, where subsurface disposal by absorption is used.

Settling tank sludge and scum may be disposed of by burial or by drying on sludge beds. The latter should be in the form of small greenhouses, glass-covered to avoid the constant re-wetting of sludge by rain, and the dissemination of odors. In larger plants, hand-operated sludge pumps should be provided to facilitate sludge removal from the tanks. The sludge dried under glass-covered beds can be removed by spading from the bed into ash cans without serious odor troubles.

Oxidation of Sewage. Oxidation of sewage is intended to change its organic content into innocuous mineral matter. The degree to which such oxi-

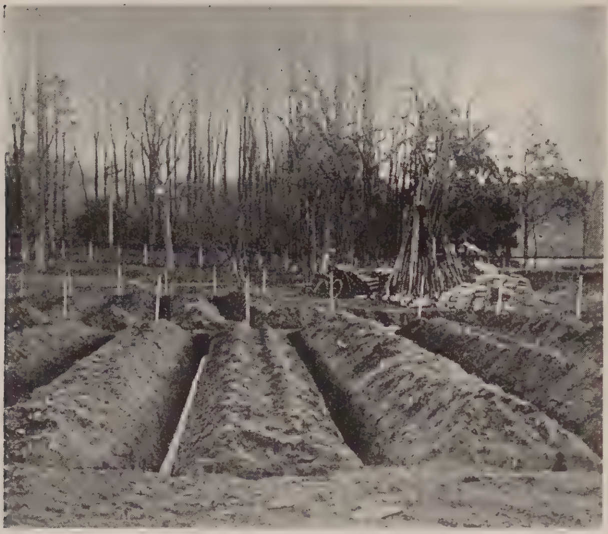


Fig. 7. Disposal Lines

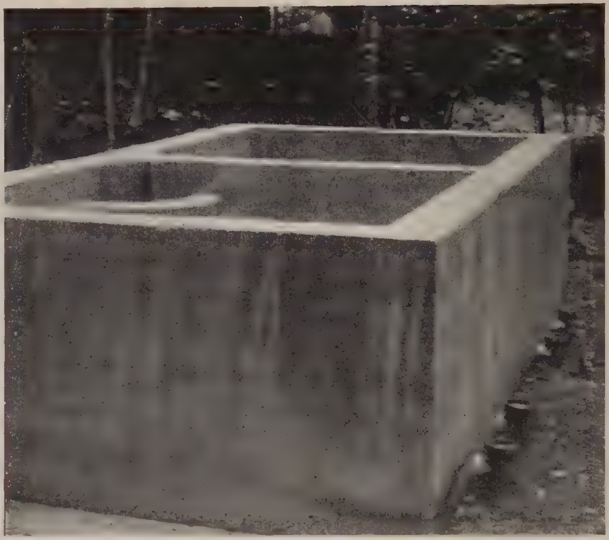


Fig. 8. Sand Filter for Bath Waste

dation must be carried depends chiefly upon the conditions of final disposal. Where the soil is practically non-absorbent and it becomes necessary to dispose of the sewage by direct discharge into a water course, the designer should ascertain whether the water course is used as a source of water supply below the point of sewage discharge. In such event, the oxidation should be as complete as it can be with the aid of sanitary science. If the water course is, however, tidal water and of large dimensions, such extreme refinement would not be necessary.

Soil Absorption. Where the soil is sufficiently porous and absorbent, the oxidation and final disposal occur simultaneously by subsurface disposal methods. The bacteria and the higher forms of life contained in the soil, with the assistance of the air which permeates it in its upper layers, perform the required oxidation before the oxidized sewage enters the deeper strata. Great care must be taken, however, to guard against the possible pollution of nearby wells or springs. Sanitarians generally consider a distance of 300 feet of an efficient subsurface sewage disposal plant as an adequate safeguard against well or spring pollution, unless local conditions, such as fissures in limestone, carry the sewage directly without oxidation to the water supply sources. Proper plant operation is most vital.

Subsurface disposal systems have the advantage of being out of sight, and the disadvantage of being out of mind. They usually consist of porous tiles about 12 inches in length, laid end to end with open joints, with the tops about 14 inches below the surface, in trenches from 12 to 24 inches wide. Good practice requires that these tiles should be surrounded with cinders, free from fine ashes, or with sand, gravel, or broken stone, when they are laid in non-sandy soil.

Tiles are made of various cross sections, such as horseshoe tiles, laid on hollow terra cotta blocks, or horseshoe-shaped tiles with horizontal partitions. These tiles should be laid with a fall not exceeding 6 inches in 100 feet. They are fed by main feeder lines,

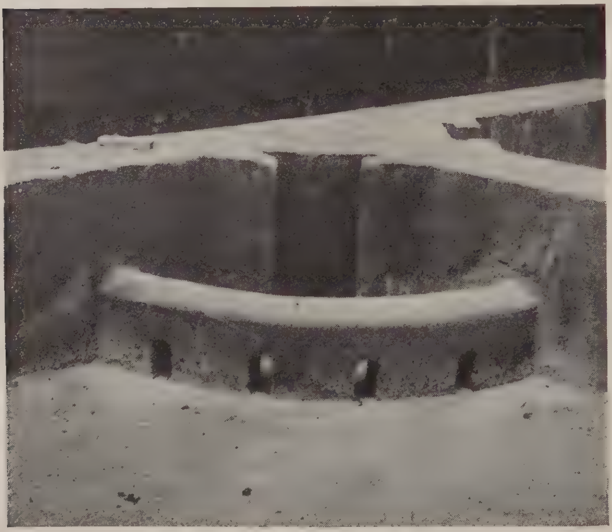


Fig. 9. Inlet to Sand Filter

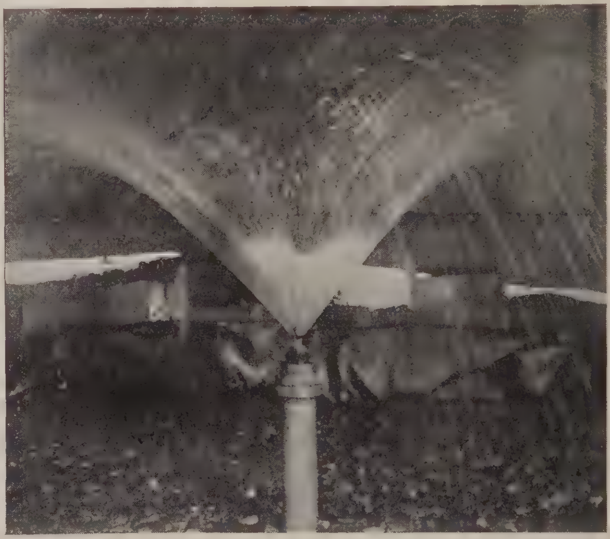


Fig. 10. A Sprinkling Filter Nozzle

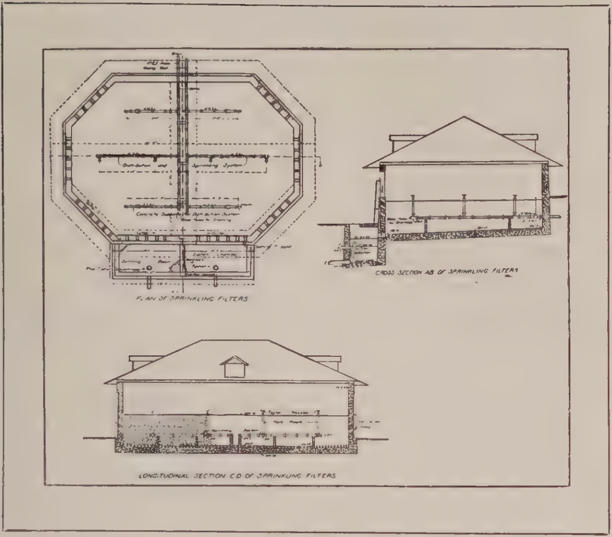

Distribution and Sprinkling System
Settling Basin
PLAN OF SPRINKLING FILTERS
CROSS SECTION AB OF SPRINKLING FILTERS
LONGITUDINAL SECTION CD OF SPRINKLING FILTERS

Fig. 11. Plan of Sprinkling Filter House

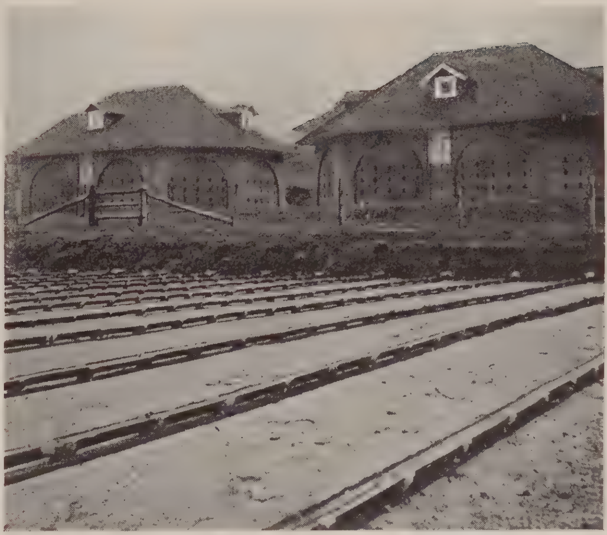


Fig. 12. Filter House of Good Appearance

usually of vitrified sewer pipe, with cemented joints. The connections between the feeder lines and the disposal tile branch lines should be made with great care, so that each disposal line branch will receive its proportionate share of sewage. Various means are employed to achieve this result, such as that shown in Fig. 6, which consists of vitrified tee branches facing down at a 45° angle, with a one-eighth bend connection to the disposal tile line.

Disposal lines (see Fig. 7) should be laid not closer than 3 feet on centers, and may be as far apart as the available area will permit. The absorptive qualities of the soil are also a deciding factor in this distance. A sandy soil will permit a greater percolation and therefore a greater distance between disposal lines.

Sprinkling Filters. The use of sprinkling filters may advantageously be resorted to as a comparatively cheap and efficient method of oxidation of sewage in cases where the ground is practically non-absorbent, and where the effluent can be discharged into a large or tidal stream, which is not used as a source of potable water supply. A sprinkling filter consists of broken stone, usually of about 1½-inch size, deposited to a depth of about 6 feet. The sewage effluent from the settling tank is applied to the top of the stone by means of sprinkling nozzles (see Figs. 10 and 11); it filters down through the stone, becoming thereby oxidized, and is collected in underdrains, which discharge it into a secondary settling tank. The effluent from this tank flows to the stream. While the degree of oxidation in an efficient sprinkling filter is quite high, the effluent is usually not quite clear and may contain pathogenic bacteria, so that it should not be discharged without disinfection, by liquid chlorine or otherwise, into a stream used for potable purposes. The sprinkling filter shown in Fig. 10 is housed in. This is a necessary precaution in golf club installations, in order to prevent objectionable odors in the near vicinity of such filters. The enclosures of the particular filters shown in Fig. 12 may be construct-

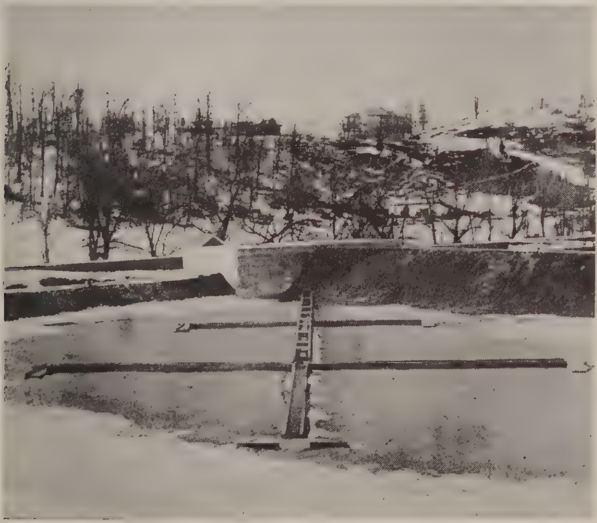


Fig. 13. Distribution by Wooden Troughs

Fig. 14. Well Concealed Pump Housing

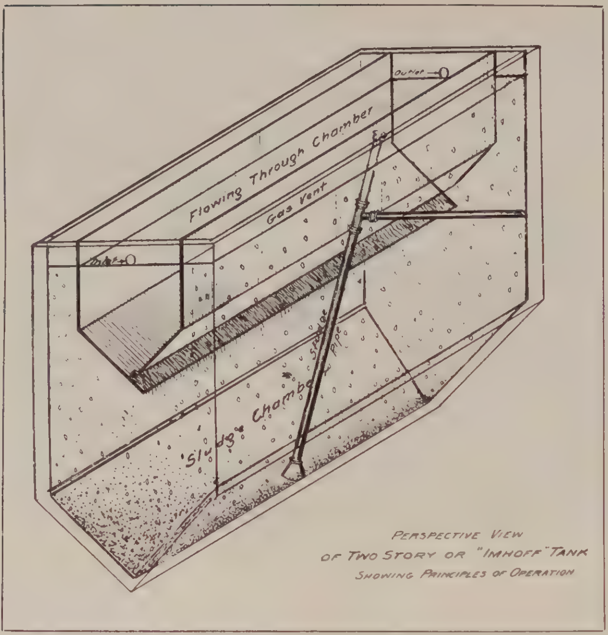


Fig. 15. Two-Story Horizontal Flow Tank

ed of a less expensive material, such as dry rubble,

Sand Filters. Where subsurface disposal systems are used for golf clubs, the installation of a rapid sand filter for the treatment of shower and bath wastes has already been recommended. A sand filter of this type is shown in Fig. 8, and a detail in Fig. 9. Cheaper construction than that shown in the illustration can sometimes be obtained by placing the filter in an excavation rather than building it within a concrete enclosure. In either case, if a filter is located among trees, a wire mesh screen should be placed over it to prevent an accumulation of leaves. Care must be taken in the design to guard against the erosion of the sand at the point of application of the sewage to the filter.

Sand filters are used where the effluent from the settling tanks cannot be absorbed by the soil and must be discharged into streams used below for drinking purposes. Sand filters are usually built in excavations and surrounded with earth banks. They consist of sand, as their name implies, and are underdrained to a common point, from which they discharge into a stream. They are usually 3 feet in depth, and the sand must be such as to have an effective size of not less than .35 mm. and a uniformity coefficient not much greater than 2. The distribution of the sewage over the sand filters is accomplished by means of wooden troughs, such as that shown in Fig. 13, or it may be accomplished by a series of half-tiles, as shown in the foreground of Fig. 12, which must be well supported.

Sprinkling filters are sometimes used to precede sand filter treatment, in order to reduce the size of the sand filters. Such procedure may result in the partial elimination of odors around the sand filter.

Sewage Pumps. It happens not infrequently that the sewage from golf club houses cannot be carried by gravity to the treatment or disposal plants. The use of motor-driven pumps may have to be resorted to in some instances, and it is suggested that their location and the design of their housing be such that they will be unobjectionable, as shown for instance in Fig. 14. A little study, with very little additional expenditure, will make even a sewage pumping station attractive in its appearance.

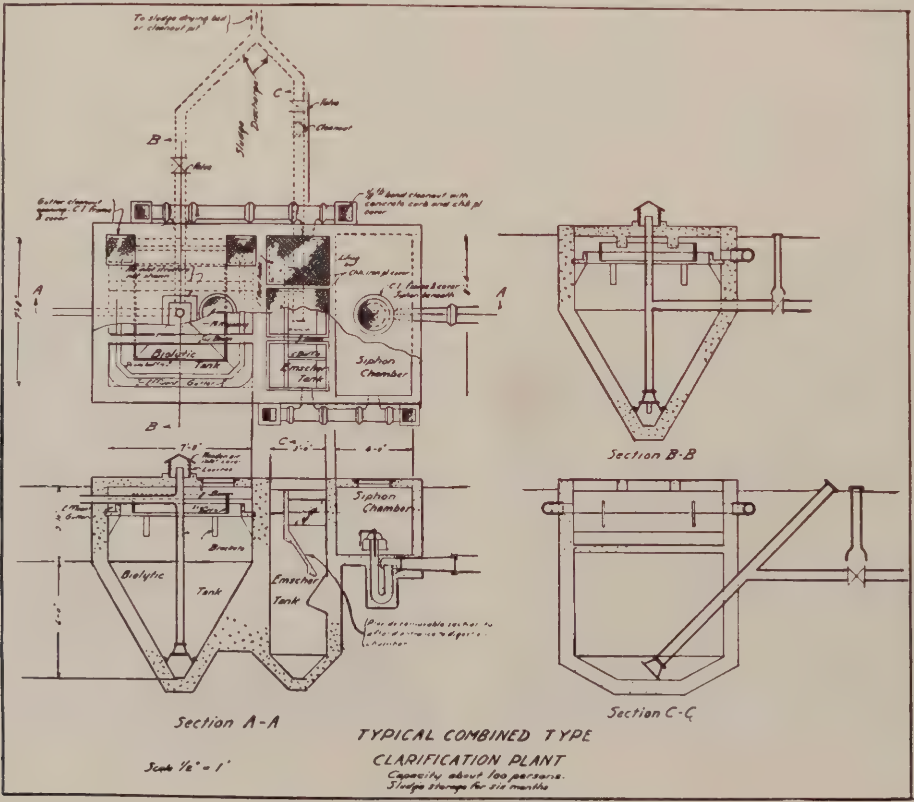


Fig. 16. Combined Clarification Plant

F. a.

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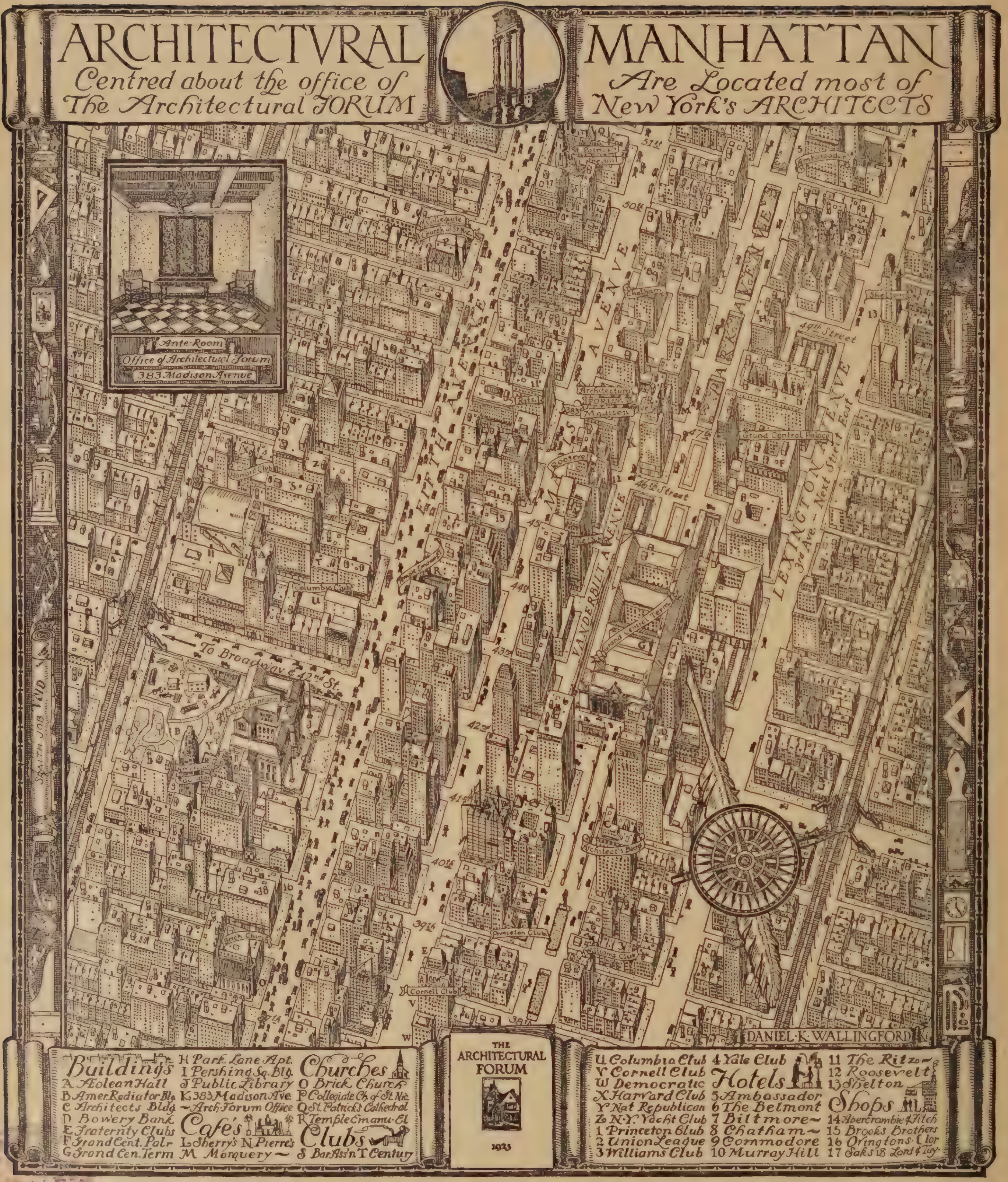

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The
ARCHITECTURAL
FORUM

Volume XLII APRIL 1925 Number 4

House of J. H. Carstairs, Esq., Ardmore, Pa.

OFFICE OF JOHN RUSSELL POPE, ARCHITECT

ONE of the most interesting country houses completed in recent years is the residence built at Ardmore, Pa., designed by that talented artist and architect Otto R. Eggers. Few houses possess greater charm and distinction than does this dignified house of Mr. Carstairs, which so well suits its fine location and historical environment. The style chosen for this design is what is commonly known as "Pennsylvania Colonial," a local phase of this style, which was characteristic of the suburbs of Philadelphia throughout the latter half of the eighteenth century. The rough stone laid up in cement, with irregular pointing, reminds one of that of many of the late Colonial mansions still to be found scattered over the countryside in the outskirts of Philadelphia and Germantown.

Characteristic of this style, wood painted white has been used for the architectural details of the building, such as entrance door, window frames, cornices and dormer windows. The stone, which varies somewhat in color, is largely of a warm cream with a slight tendency toward pink. Cement has been "buttered" upon the wall surfaces in a very rough and uneven manner, producing a pleasing texture and harmonizing well with the color of the stone which in many cases is seen through the cement, giving an old fashioned effect.

The formal entrance with stone piers and wrought iron gates, in late Colonial style, leads into a forecourt in front of the house. This court is flanked on one side by the long service wing of the house, still farther extended by a high wall, and on the other side by another long stone wall concealing the terraced flower garden. At the end of this wall, nearest the house, a small arched gateway gives access to this garden. The forecourt itself is encircled by the entrance drive, forming a center plot beautifully planted with flowers and shrubs and large box trees. The feature of this forecourt garden is the oblong pool, extending nearly its length. Against the group of large box trees centered at the end of the pool is a white marble figure of Aphrodite. The shrubbery and flowers of this garden give a touch of informality, and the trees and shrubs along both sides produce an atmosphere of age and distinction in this approach to the house such as is seldom found.

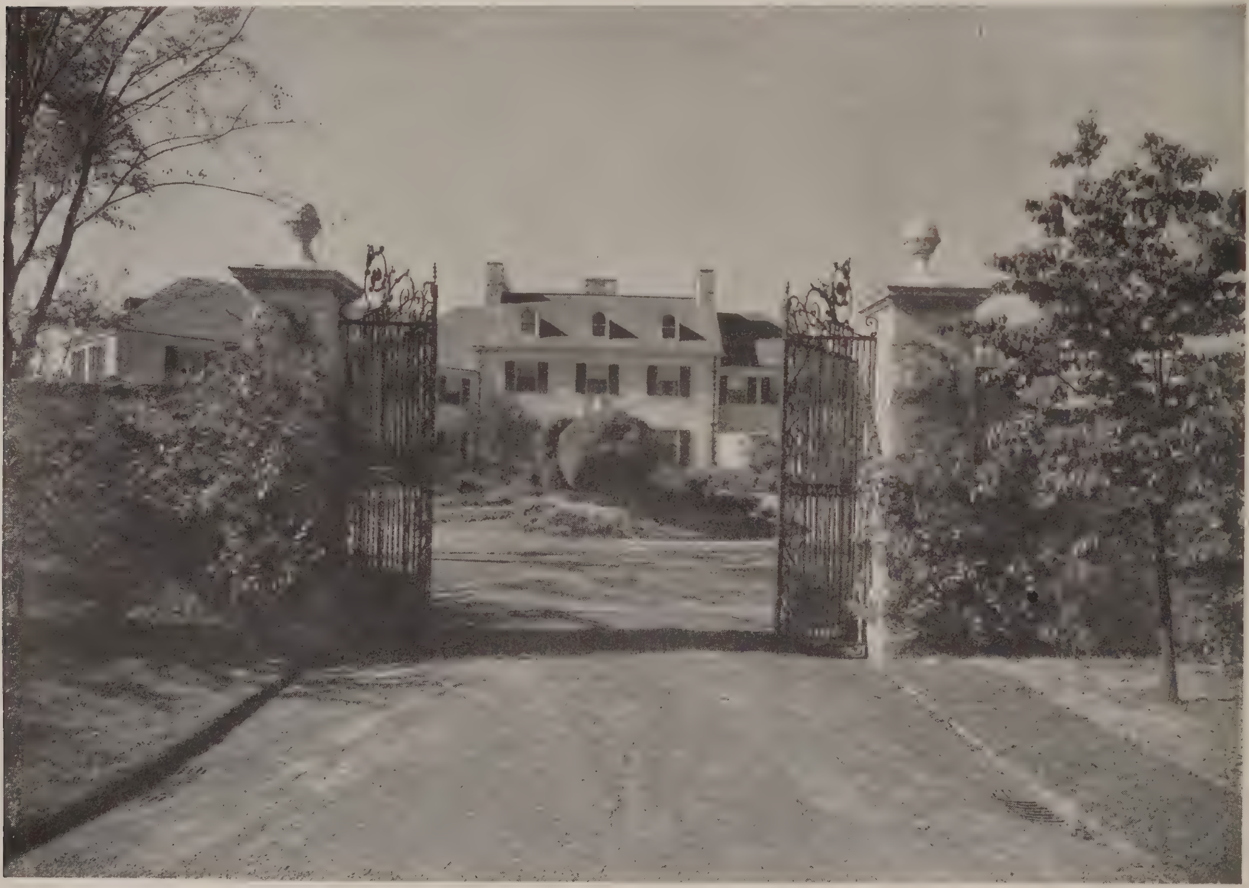
The design of the building itself shows a dominating center motif of two high stories and roof with dormers, which rises sufficiently above the balancing wings to give it proper prominence. The ends of this center motif are built up with stone gables and massive chimneys which sharply define this portion of the design. These stone gable ends receive on either side the lower roofs of the wings of the house. The cornice line of these wings is lower than that of the main part of the house, while the roof and cornice line of the long service wing are placed upon a still lower level. This differentiation in roof and cornice lines adds much to the relative scale of the entire design. The entrance front with its five windows and center door shows a pleasing preponderance of wall surfaces in relation to fenestration. This carefully studied relationship increases the dignity and apparent size of the entrance front and makes possible the use of an imposing projecting entrance door with hooded roof, which type of roof is repeated on the several bay windows on the other sides of the house. This roof treatment of the bay windows not only adds to their apparent height but also gives to them a charming quaintness and originality. The garden facade of the house, which faces on a broad stretching lawn broken by tall elms, shows an interesting use of arched openings with casement doors which contrast pleasantly with the high roofed bay windows. It is encouraging to find that the bay window can be so successfully used as a feature of late Colonial design. Precedent in this country shows few examples of the successful use of the bay window in Colonial houses, but many splendid examples are found in Georgian houses in England. The color treatment of the metal roofs of the bay windows in the Carstairs house still further adds to their attractiveness. Painted in broad stripes of vivid and contrasting colors, the effect produced is that of gay awnings. The dark green in the alternating stripes of these window hoods is repeated in the color of the window shutters and the various awnings. It is seldom that so much feeling of individuality and originality is found in the design of a modern Colonial house.

Pool, Entrance Forecourt

Round-headed dormers, which occur on both elevations of the center part of the design, are small in size and simple in detail, so that they add to rather than detract from the architectural quality of the design. In fact the smallness of their size gives scale to the main roofs of the house.

As may be seen from the illustration on page 215, the walled and terraced garden is delightfully and successfully made a part of the whole design. Some of the doors of the sun parlor open directly upon this garden, in which box and flowering shrubs have been happily combined with the rough masonry of the garden wall and terrace steps. Surrounded by beds of roses and by stepping stones in formal layout, a small pool with hexagonal ends is the center feature of this garden. At one end a high, vine-covered pergola gives protection and seclusion, while the side opposite the terrace and high wall is so screened by tall shrubbery that the garden has great privacy. Simple fountains, which break the severity of the garden wall and terrace parapet, are successful in their appropriateness and character.

The plan shows a balanced arrangement, with a large living room 36 feet long by 20 feet wide occupying the greater part of the main floor. In plan this room is symmetrical, the center fireplace balanced by double doors on the inner wall of the room, while two large bay windows balance an entrance door on the opposite side of the room. These windows and doors open onto the broad lawn at the rear of the house. At either end of this living room are double doors, leading at one end to the dining room and at the other to the large sun parlor. The entrance part of the main floor plan shows a spacious hall, at one end of which a circular staircase leads to the floor above. At this end of the hall, under the staircase, double doors lead to the dining room, while at the other end a passage leads to the sun parlor. Off this passageway open coat rooms and lavatories for both men and women. The plan of the service wing on the main floor includes a convenient and practical

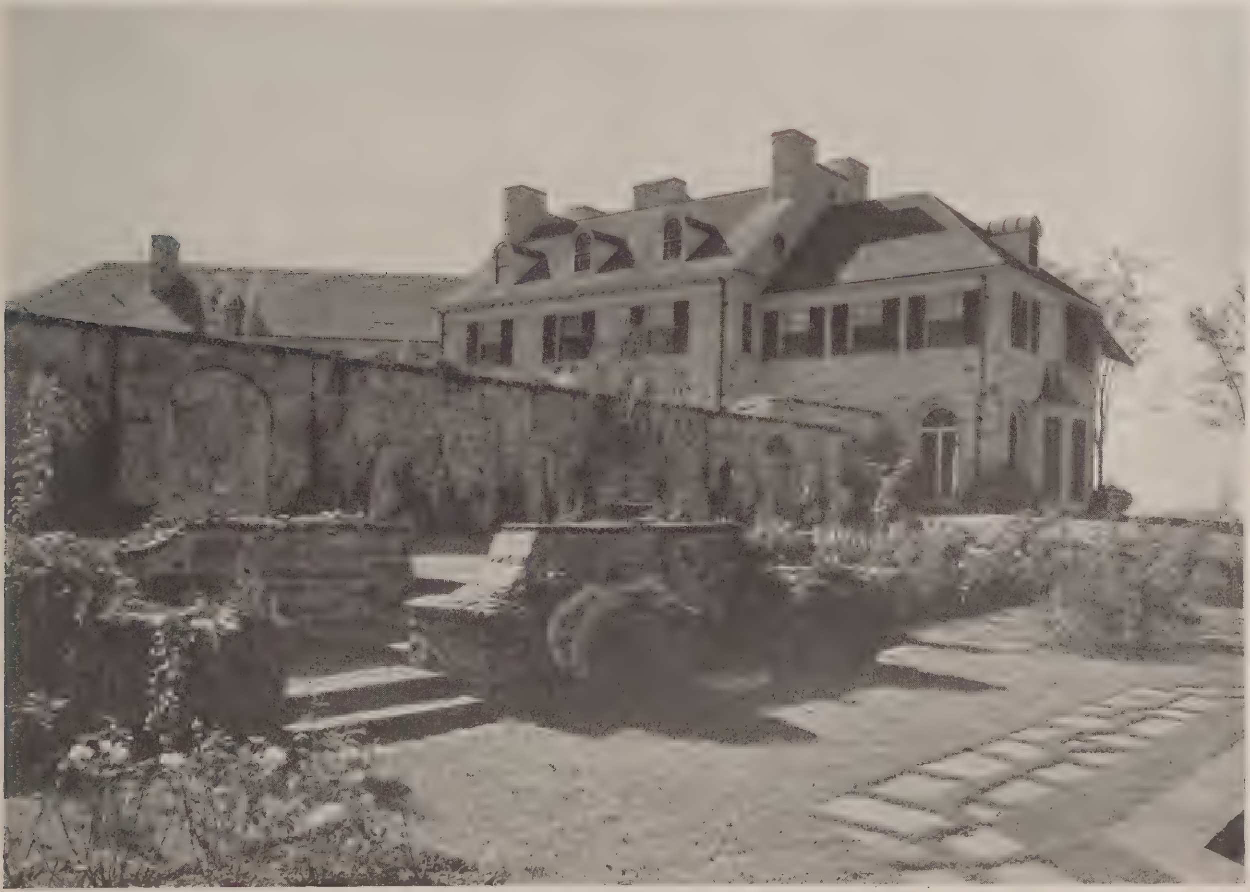


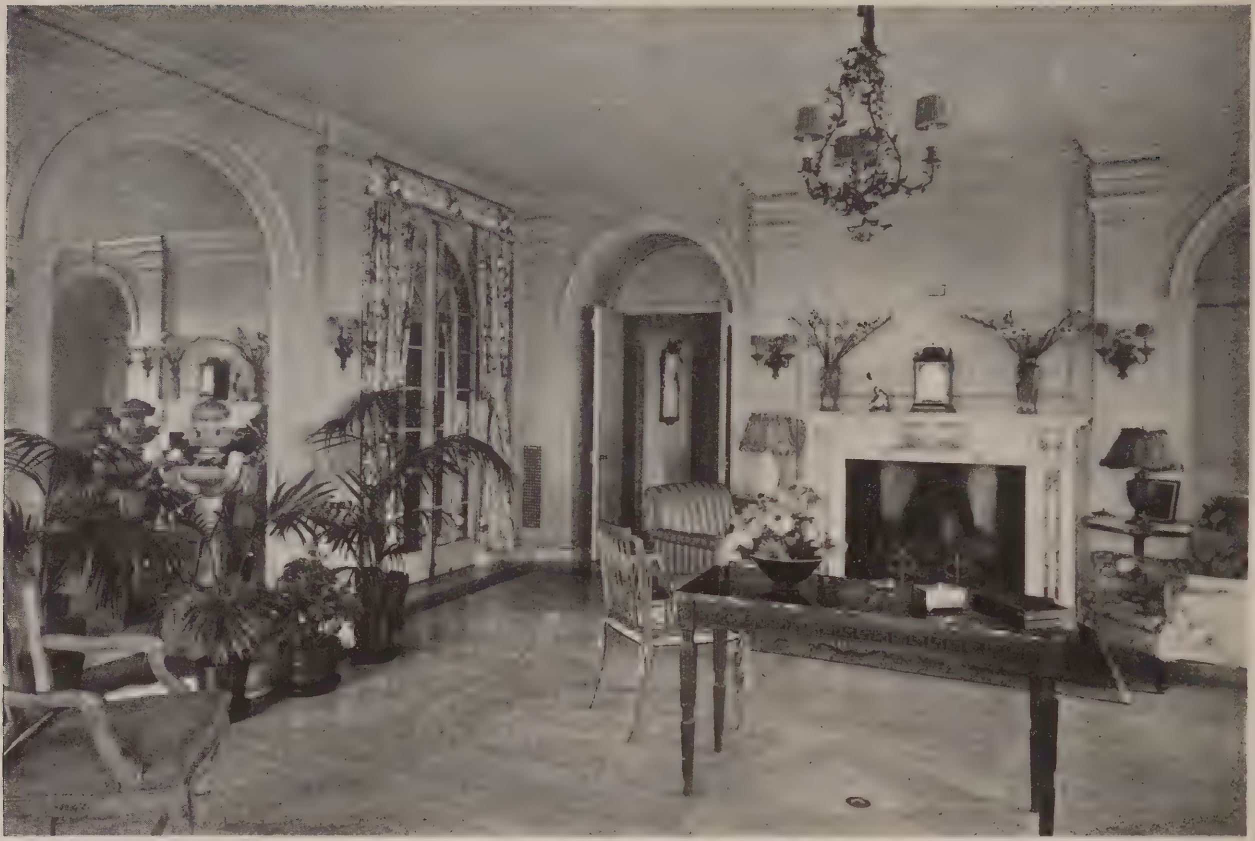
Entrance Gate and Forecourt

arrangement of pantry, kitchen, servants' dining room, laundry, cold room, storage closets and service stairway. The angle at which this service wing joins the main house is such that an unobstructed view of the surrounding lawns is to be had from two sides of the dining room. The plan of the second floor provides a master's suite at the end above the sun parlor, consisting of a large bedroom, spacious sleeping porch, dressing room and bath. Another master bedroom with boudoir and large closets is located over the living room. Two other bedrooms and baths complete the plan of the main part of the second floor. A side hall leads down five steps to the level of the second floor of the service wing, where are located five servants' bedrooms, a bath, linen closet and trunk room. Only the center portion of the house is sufficiently high to permit rooms on the third floor. Here are located one large bedroom, dressing room and bath, a linen room, and a sewing room. Due to the slope of the roof, the outer walls of these rooms are set well in, so that practically no slope of roof appears above the outer walls of these rooms. This wall treatment necessitates a deep recess for each of the dormer windows.

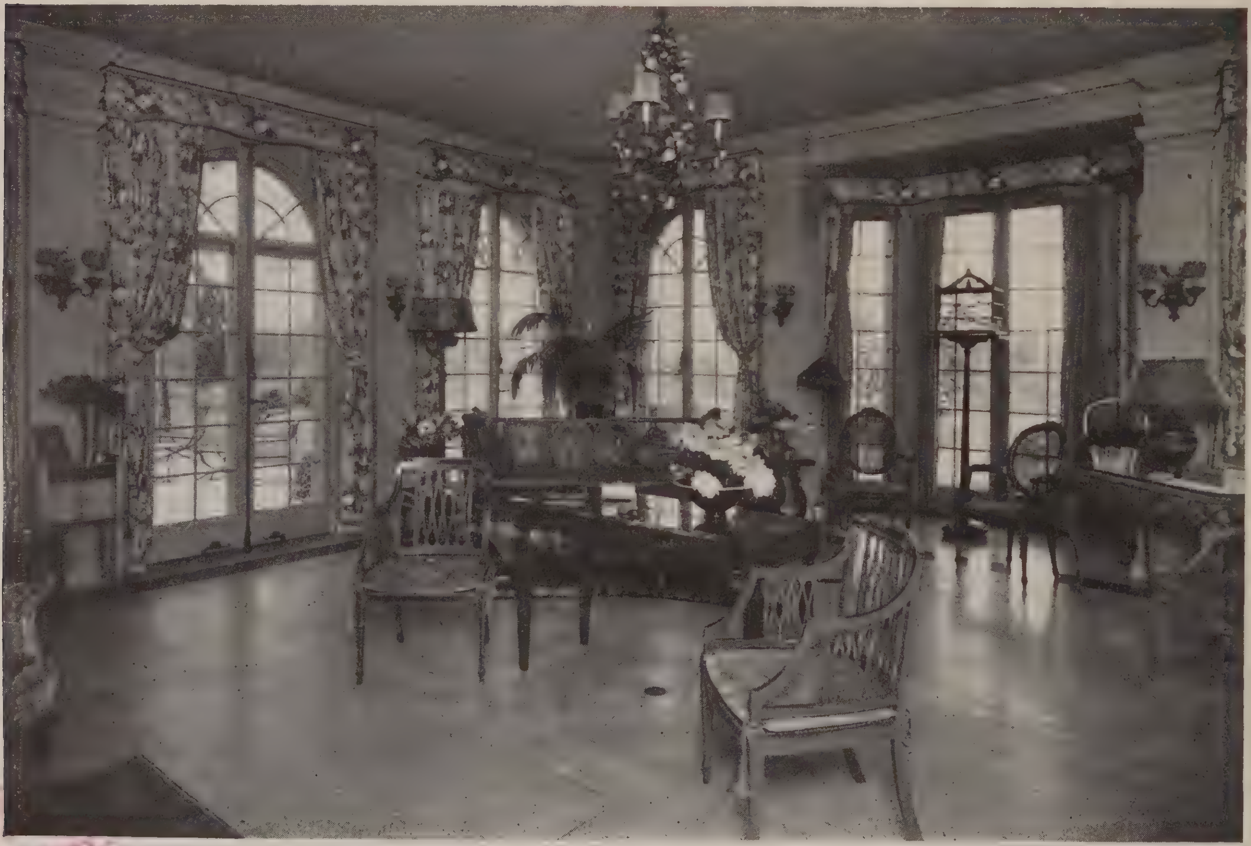
No analysis of this unusually individual house would be complete without some description of the delightful interiors. The large living room is paneled from floor to ceiling, with a richly carved cornice and built-in bookcases to give decorative distinction to the room. These bookcases, which are set in arched recesses, have cupboards below and broken pediments above, truly late Colonial in feeling. The marble mantelpiece, Adam in style, in which white and colored marbles are combined, contrasts pleasantly with the gray-green of the painted walls. Hangings, furniture coverings and rugs in rich tones of old gold and rose harmonize pleasantly with the green walls. The dining room, more strictly Georgian in design, is also paneled, showing rich carving in the cornice, mantelpiece, overmantel and arched niches. English furniture of the Adam and Sheraton

Terrace and Pool in the Garden


House from the Garden



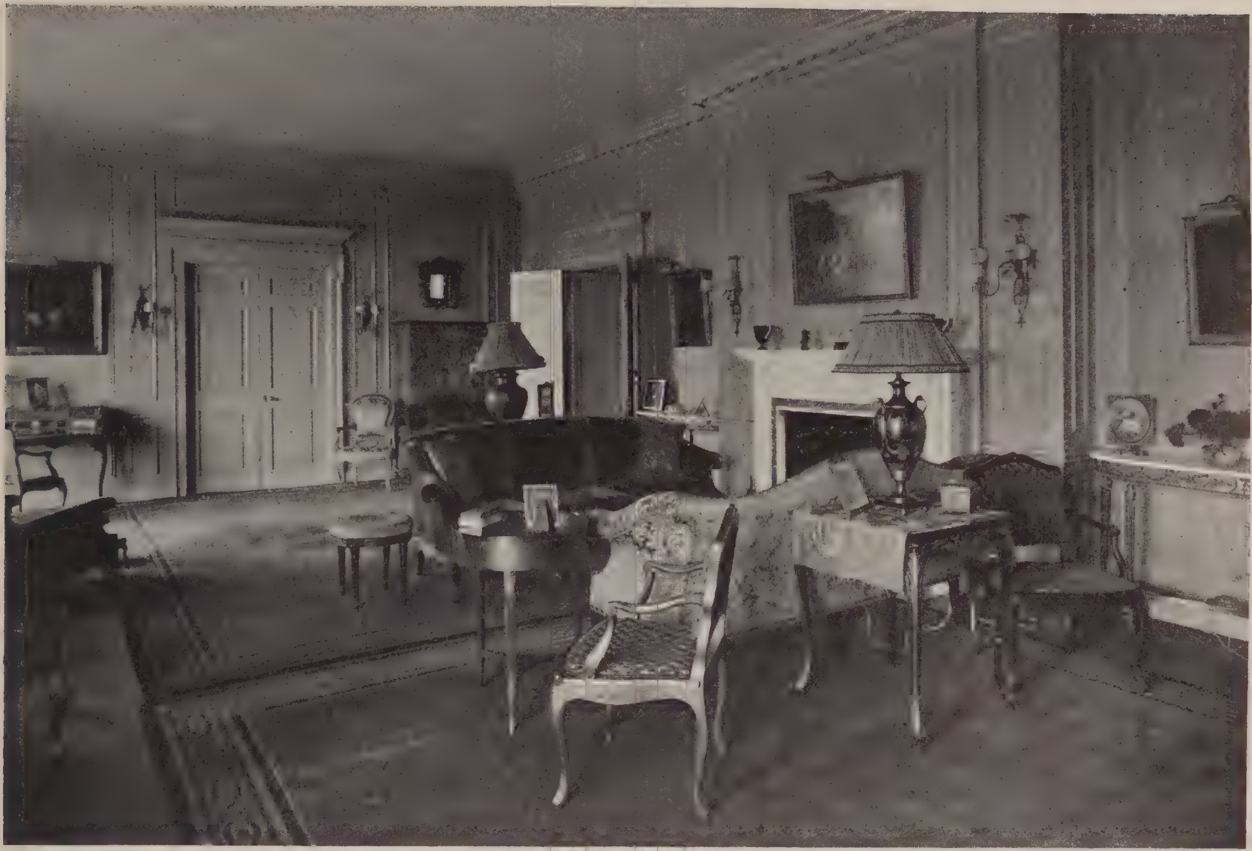
SUN PARLOR



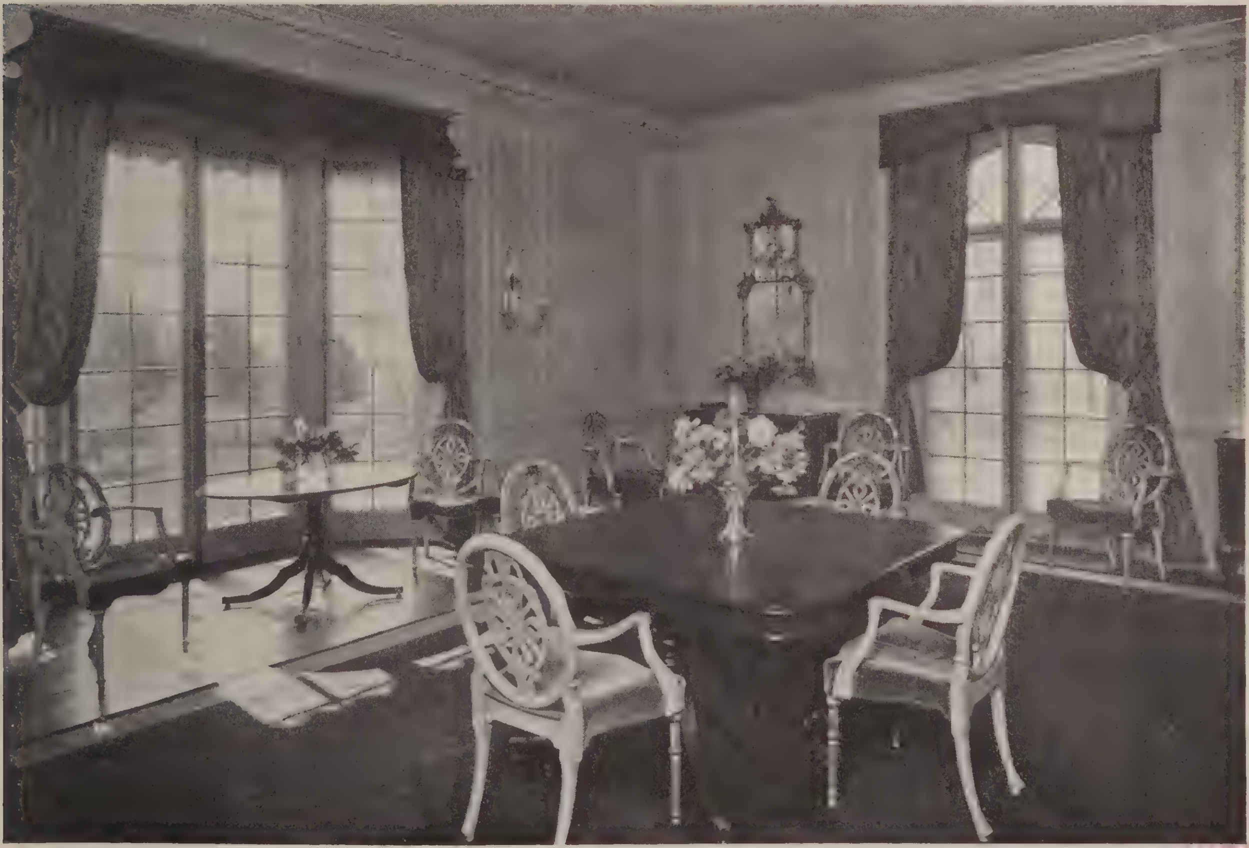
SUN PARLOR, SHOWING ARRANGEMENT OF WINDOWS

HOUSE OF J. H. CARSTAIRS, ESQ., ARDMORE, PA.

JOHN RUSSELL POPE, ARCHITECT



LIVING ROOM



DINING ROOM

HOUSE OF J. H. CARSTAIRS, ESQ., ARDMORE, PA.

JOHN RUSSELL POPE, ARCHITECT

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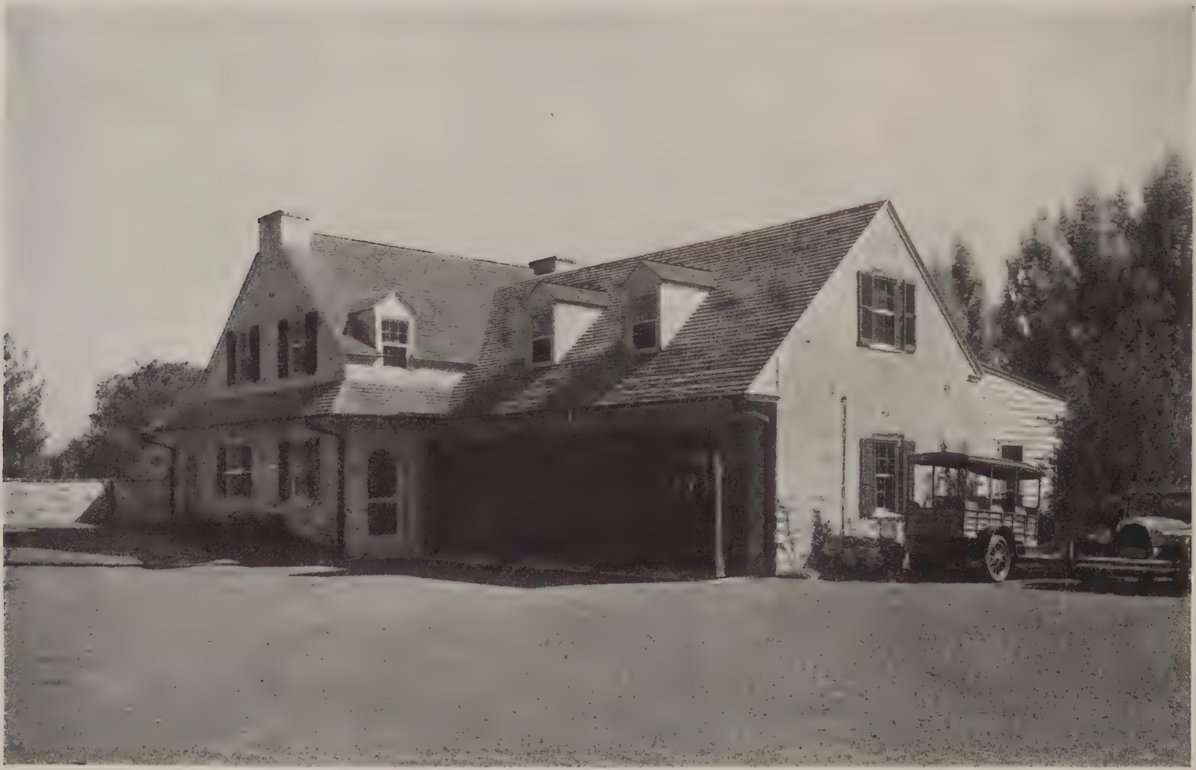
styles further accentuates the stylistic qualities of this room. Graceful sconces create notes of interest against the paneled walls of this dining room, in which colonial buff and blue represent the color scheme. The sun parlor indeed deserves its name, which is seldom the case. This room is truly a parlor flooded with sunlight, through its many high casement windows. A beautiful floor in gray and yellow marble, arranged in squares and ovals, gives dignity to this room. Gay flowered chintz hangings at the windows are in pleasing contrast with the warm gray of the walls and pilasters. An ornamental mantelpiece in white and colored marble is the chief feature of this room, in which a large arched mirror and fountain add other notes of interest. The electric wall brackets as well as the center chandelier are appropriate and informal in their metal flower decorations. These three attractive rooms all open into the unusually fine entrance hall. Here black and white marble floors, and plain plaster walls, ornamented above the doors with medallions in low relief suggesting the Adam style, give a formal dignity suitable to the public entrance of a large house. At the dining room end of this entrance hall a curving stairway of exquisite grace of line and delicacy of treatment leads to the floor above. The slender balusters of the wrought iron handrail, which follows both sides of the stairway, still further accentuate the feeling of grace and refinement in this beautiful staircase.

Plates 48, 49 and 50 in this issue of THE ARCHITECTURAL FORUM show the plans and additional illustrations of this interesting house, from which it will be seen that it stands as an unusually successful solution of the problem of designing a country home which shall embody the traditions, social as well as architectural, of a locality rich beyond most communities in traditions of both kinds.

Detail, Dining Room



Garage and Chauffeur's Quarters

An Architect's Impressions of Oxford

By HAROLD FIELD KELLOGG

YEARS ago I "did" Oxford with a guide in five hours and saw all the score or more colleges, but I remember only Brasenose because of its brass knocker,—a lion's head with its enormous nose. For an architect, the best way to "see" anything is to draw it; if he has examined its proportions and details closely enough to make even the roughest sketch, it must remain in his mind.

The charm of Oxford comes not so much from its crumbling antiquity, its historic significance, or its architectural monuments as from a sense of its fine, livable qualities, its restrained scholastic feeling and its subtlety of scale. The scale of the work is so perfect that one wonders how it was achieved, and it is this elusive element which is so difficult to grasp. We are afraid of making a design too small in scale, for fear it will appear cramped, but Oxford is not cramped,—it is just snug.

Arriving there again and alone, late one night a few months ago, I might have been lonely and depressed, but what a feeling of comfort and of well ordered existence came over me when I strolled into the first "quad,"—Exeter, I think! It was raining, but the dim buildings above the wet flagstone pavements and neatly cropped "green" gave a familiar feeling, as if I had lived there in some previous existence. What mystery lurked in the dark entrance gateway with its iron-studded oak doors, doors which were reminiscent of knights in clanking armor. Above was the vault, beyond a dim lantern, and a warm yellow glow came from the window of the porter's lodge. I felt a desire to find my way into the nearest doorway, mount the worn stone stairs, and spend the rest of my life there! Back in the misty street, I wandered down the "Turn," pushed back another partly open door and found myself in Lincoln quad—similar, and yet subtly different.

It is quite impossible to describe in detail each college separately, for about each are things which attract the eye and hold the attention,—it may be a little gem of a corner, a tower or some exquisite window. Many of Oxford's choice bits are hidden in out of the way places; there are the old ramparts, for example, behind New College,—a wall which history tells us was built during the reign of Henry III and was old before New College was founded in 1379. Another choice bit is the little archway at Merton College between the large quad and the picturesque "Mob quad," the origin of which name has apparently been lost with time. The exquisitely proportioned towers of Magdalen are best seen from across the river with Folly Bridge in the foreground and with the lights of the town reflected on the still, black waters of the Cherwell. I rambled back to the hotel by way of Long Wall, Holywell and the Broad, past St. Mary Magdalen's and the Martyrs' Monument. In Oxford, one does not speak of Long Wall Street, Holywell Street or Broad Street, but always familiarly as Long Wall, Holywell and the Broad,—the familiarity of long usage.

Oxford is not merely a town of colleges; it has its own quaintly picturesque houses. A view down Fisher Row with the remains of Oxford Castle towering above the canal might almost be a view in Bruges or Ghent, the houses toppling together like fishwives gossiping. Worcester College, called "Botany Bay" from its remoteness from the town, is really not far away; all the colleges rub elbows with one another. The choicest bit here is the group of cottages behind;—here the architect wonders how such simple materials can be so wondrously combined,—carved wood gable ends, stone mullioned windows, saddle-backed ridges and rickety dormers.

Back by the Cattle Market and Friars' Entry, I came upon the church of St. Mary Magdalen, a typical parish church showing all the styles from Norman to Perpendicular. Here the University sermons are preached by "select preachers," each sermon preceded by the "bidding prayer" for the University's benefactors. Nearby, in front of Balliol College, stands Martyrs' Memorial, a quaint Gothic pinnacle. Here Latimer and Ridley were burned in 1555. Their only relief from pain was found in the bags of gunpowder hung around their necks, which quickly put an end to their sufferings. Balliol, founded in 1260 in performance of a penance imposed upon John de Balliol by the Bishop of Durham, is largely restored. Those were great old days, when a man could expiate some crime by endowing a college or a church,—but have times really changed so much after all?

Back of Balliol is Trinity, one of the finest of all the colleges in Oxford. I pushed into its creeper-covered chapel, and when my eyes became accustomed to the dim light, I found a masterpiece of wood carving by Grinling Gibbon, a cedar screen and altar piece. Gibbon seems to have carved more wood at Oxford than in all the rest of England put together. What a strange, incongruous pile is the Radcliff Camera! The Renaissance dome, graceful as it is, seems to speak of a different epoch, of the advent of modernism into a mediæval university town,—distinctly another note. All Souls', across the way, brings us back to the ecclesiastical style, although showing a touch of the classic in its orders. All Souls', Christ Church, Corpus Christi, the Examination School, the Bodleian Library,—one can but mention their names.

One day while sketching in an inner court at Jesus College,—a court not more than 30 feet wide,—I met the college architect and asked if I might look

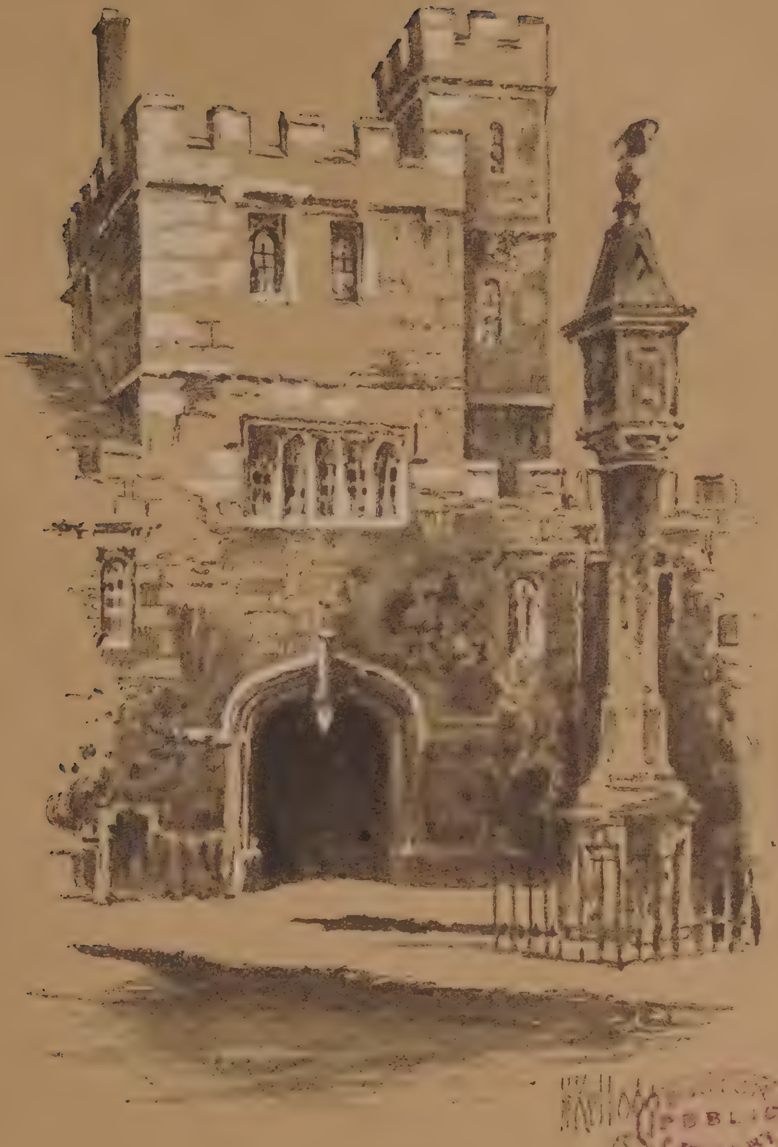
Corner of Quadrangle, Christ Church, Oxford

Tom Gate, Christ Church, Oxford

From Pencil Sketches by Harold Field Kellogg

over his plans for his new work and for some of his restorations. Together we went, first down the narrow lane called Ship Street, then through a passage under the houses fronting on the street, and finally up a dim flight of stairs to his office at the top. Here he had designed one of the finest of the modern buildings, doing all the drafting with his own hands. By studying the old work he had been able to give to the new not only the style and scale of the old but much of its wondrous charm as well. What modern American office of a hundred draftsmen, located in a city skyscraper and with even the best library and documents at its disposal, could give that elusive air of fitness and continuity with the past? He had absorbed it by living for years in its atmosphere! When I expressed a desire to get plans of all the colleges, he dropped his work, led me to an old bookshop, up into its dusty half-timbered loft, and there found some fine old prints made many years ago. We spent half a day together, and wandered leisurely from college to college, while he pointed out the many interesting spots he had found. He was not too busy to entertain me,—his work could wait! That was a most profitable day for me, for I saw many picturesque corners I might not have found alone. The severe dignity of the cloisters of New College, one of the finest examples of ecclesiastical work in England, charmed me in their way, as much as the "Tom Tower" at Christ Church, which was designed by Sir Christopher Wren in 1682 for Bishop John Fell.

There is one thing noticeable in all the colleges; they are more personal and intimate within than without. The quads are really interiors, open to the air. There is a change of feeling in the architecture as one passes under the entrance gates. The interiors of the great rooms, the chapels, libraries and dining halls, give one an impression hard to describe. Perhaps it is the result of the dim light filtering through the stained glass, glowing with color, some as old as the University itself, and other windows designed by Sir Joshua Reynolds. Perhaps it is the wood carving; perhaps it is the lace-like stone tracery,—and perhaps it is the influence of all combined. Oxford's air of living well does not pass lightly over the dining halls, making them merely rooms to eat in. All of these halls, with their heavy timbered roofs, high carved paneling, old paintings and massive oak furniture, are expressive of the solid rather than of the gay, social side of the student life. Around these crude tables, seated on long benches, Britain's manhood has been developed through the centuries by plenty of good cheer and good beef. Napoleon said, after the battle of Waterloo, that the day was won not by superior strategy or military tactics, but by British beef!



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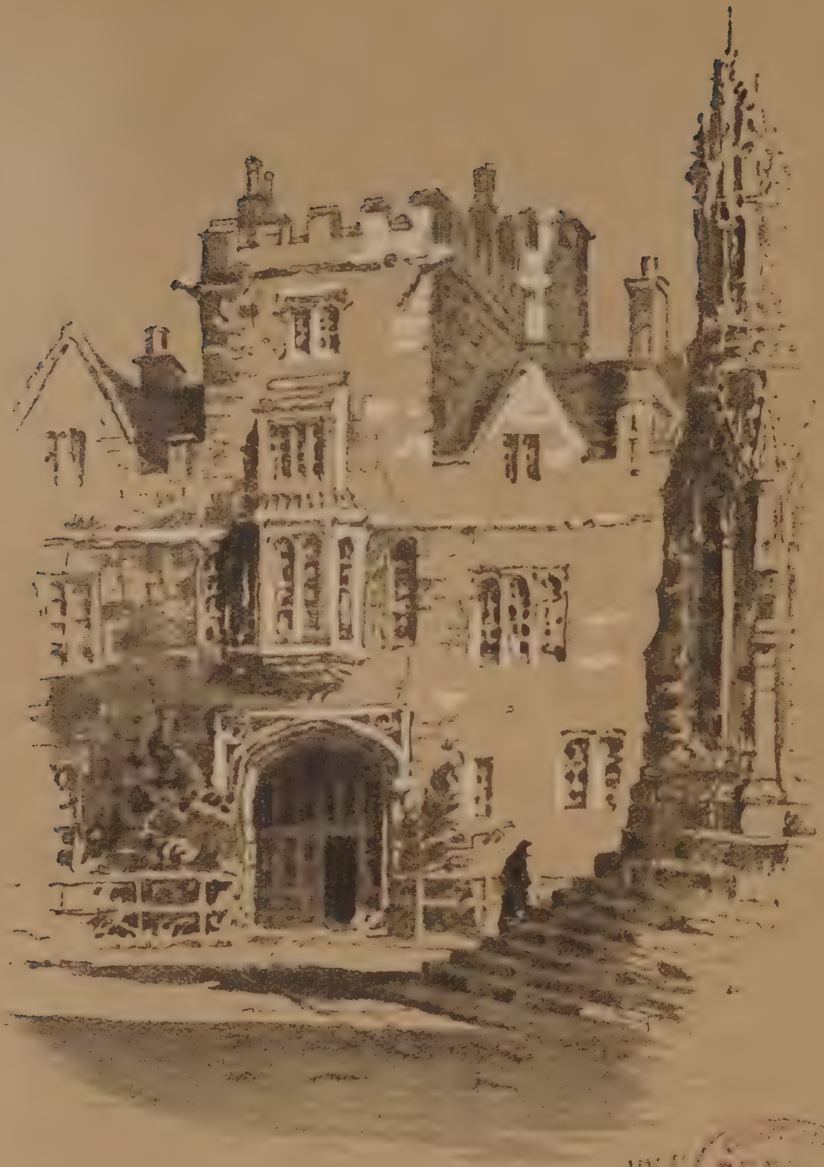
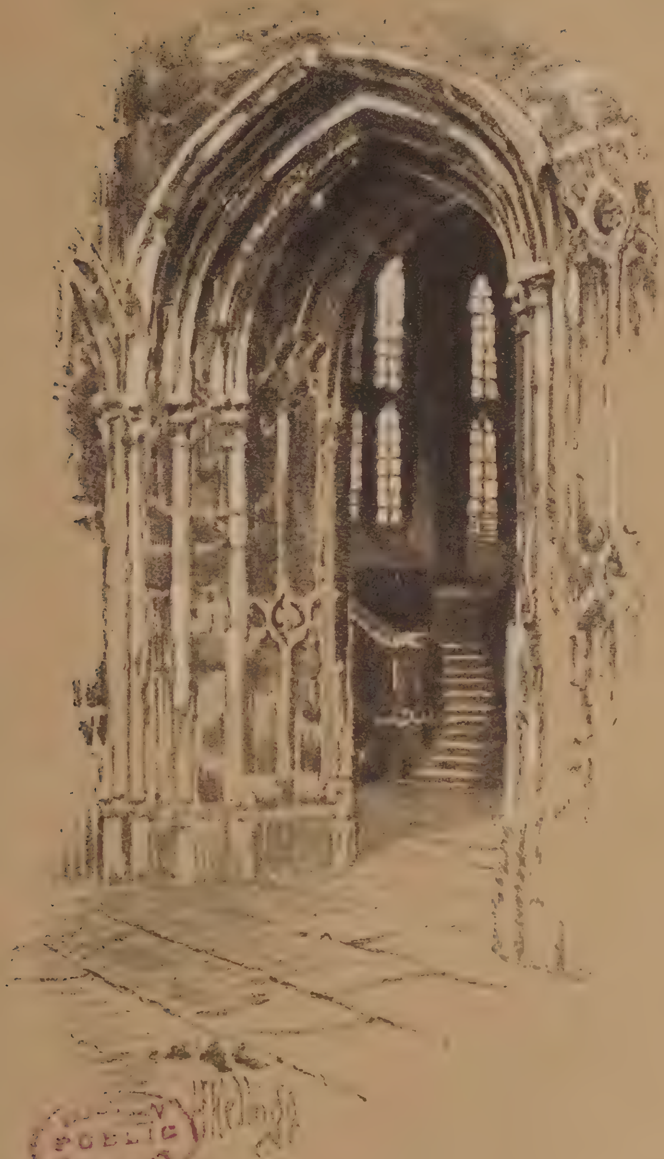
CORPUS CHRISTI, OXFORD
FROM PENCIL SKETCH BY
HAROLD FIELD KELLOGG

THE ARCHITECTURAL FORUM
APRIL, 1925
PLATE 41



ENTRANCE, BALLIOL, OXFORD
FROM PENCIL SKETCH BY
HAROLD FIELD KELLOGG

THE ARCHITECTURAL FORUM
APRIL, 1925
PLATE 42



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DETAIL, CHRIST CHURCH, OXFORD
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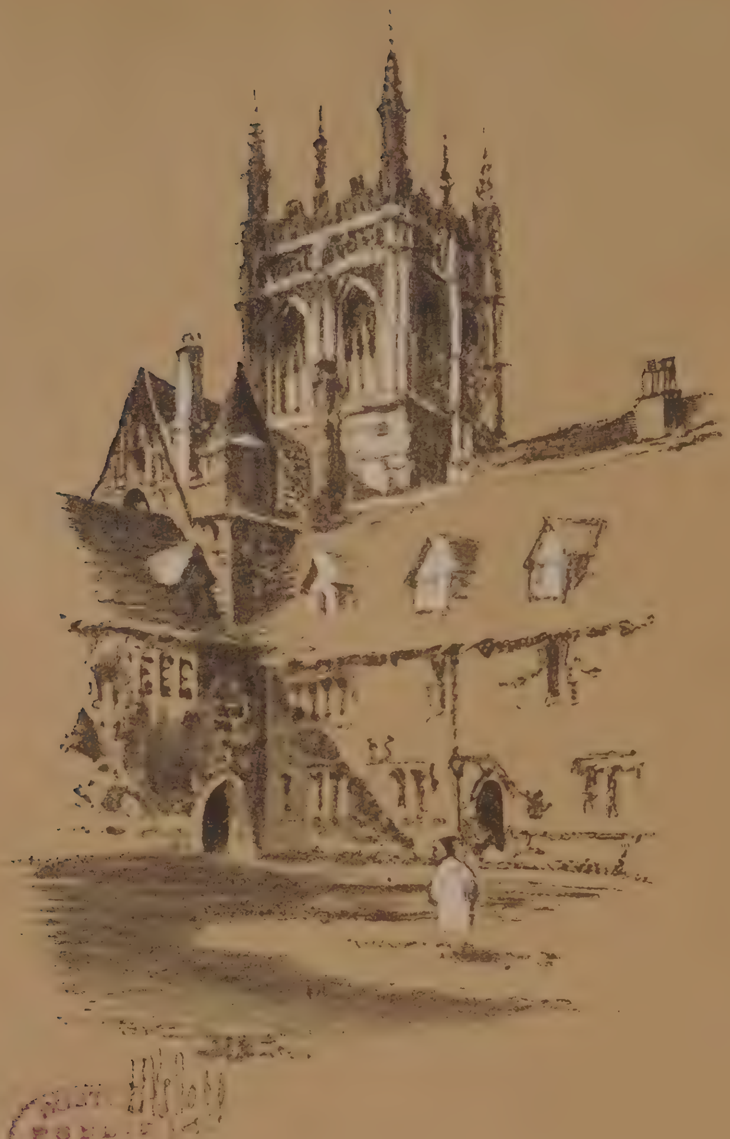

MERTON TOWER, OXFORD
FROM PENCIL SKETCH BY
HAROLD FIELD KELLOGG

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The Flatbush Presbyterian Church

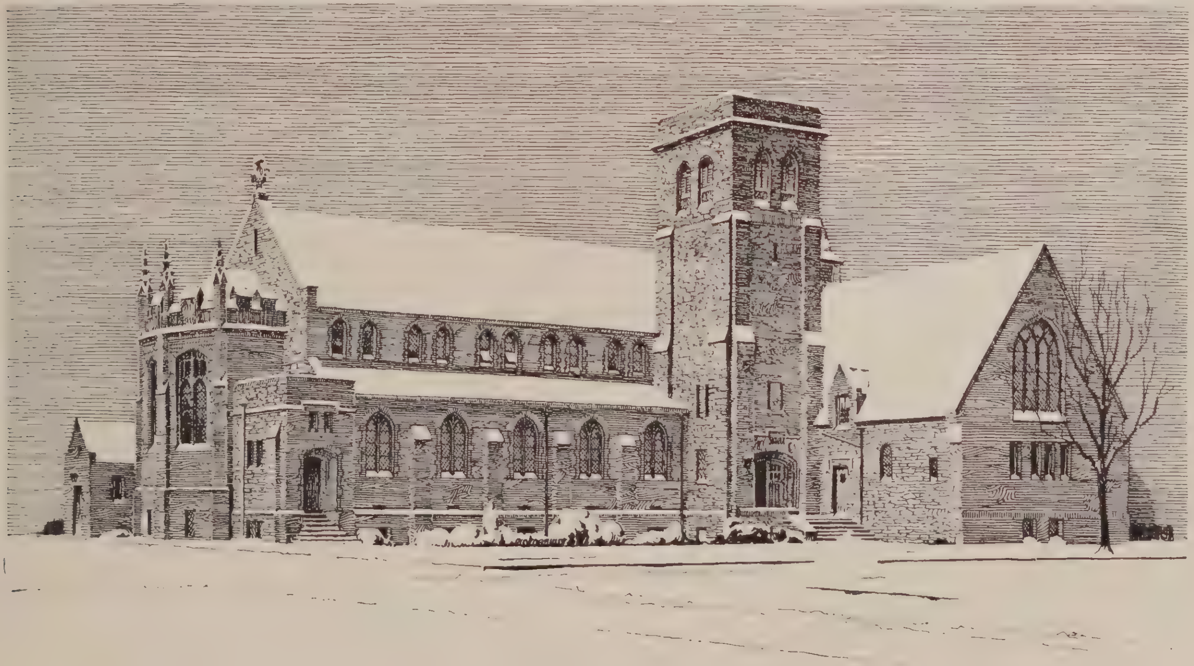
HOBART B. UPJOHN, Architect

THE architect who designs a church for a site which is urban or semi-urban, must plan for present-day conditions and at the same time have an eye to conditions which may obtain within a comparatively short time. Nothing could be more charming or appropriate for a country church nestling among the trees of its churchyard than a low, rambling grouping, with a spire pointing to the sky; but elsewhere other conditions must be reckoned with, and the grouping and spire which were so graceful and appropriate in the country would be wholly out of place when presently dwarfed and overshadowed by a tall apartment house, built perhaps by investors quick to appreciate the advantages in the way of receiving air and light which a location next to a church presents.

Possibly these conditions were in the mind of the designer of this church located in a rapidly growing part of suburban Brooklyn, where already apartment houses of various heights are springing up. Gothic forms were desired by the congregation, but use has been made of a type of Gothic of vigorous character, and of a plan closely grouped and calculated to hold its own whatever may be the development of the neighborhood. The size of the plot, which is upon a corner, and the L-shaped form which the area of the building has been given, made possible a graceful and effective arrangement by which a large part of the plot is used as a lawn, affording the slight aloofness of setting which the character of the buildings demands.

The importance of the part of the group devoted to various forms of social service demanded that the entrance thereto be prominent and important, and the area of the buildings prevented there being two important entrances, one leading to the social service and administration portion, and the other to the nave or church proper. The plan therefore shows but one entrance, which serves both portions of the group, this arrangement making possible an effective architectural treatment, the one entrance being placed beneath the square tower at the angle where the two portions of the group are joined. The east end of the nave, which thus faces the street and is not joined to other parts of the building, is given an octagonal apse, lighted by the three tall traceried Gothic windows which add greatly to the architectural dignity of the group. The exterior of the church has been developed in stone of a rich brownish gray, showing considerable iron. The stone is laid in random ashlar, of a rough finish, while the trimmings are of stone in a smooth finish. The roofs are covered with slate. Everything about the building is honestly and thoroughly built. There is no sham about it, no painting and "sanding" of wooden trim to make it vaguely resemble stone.

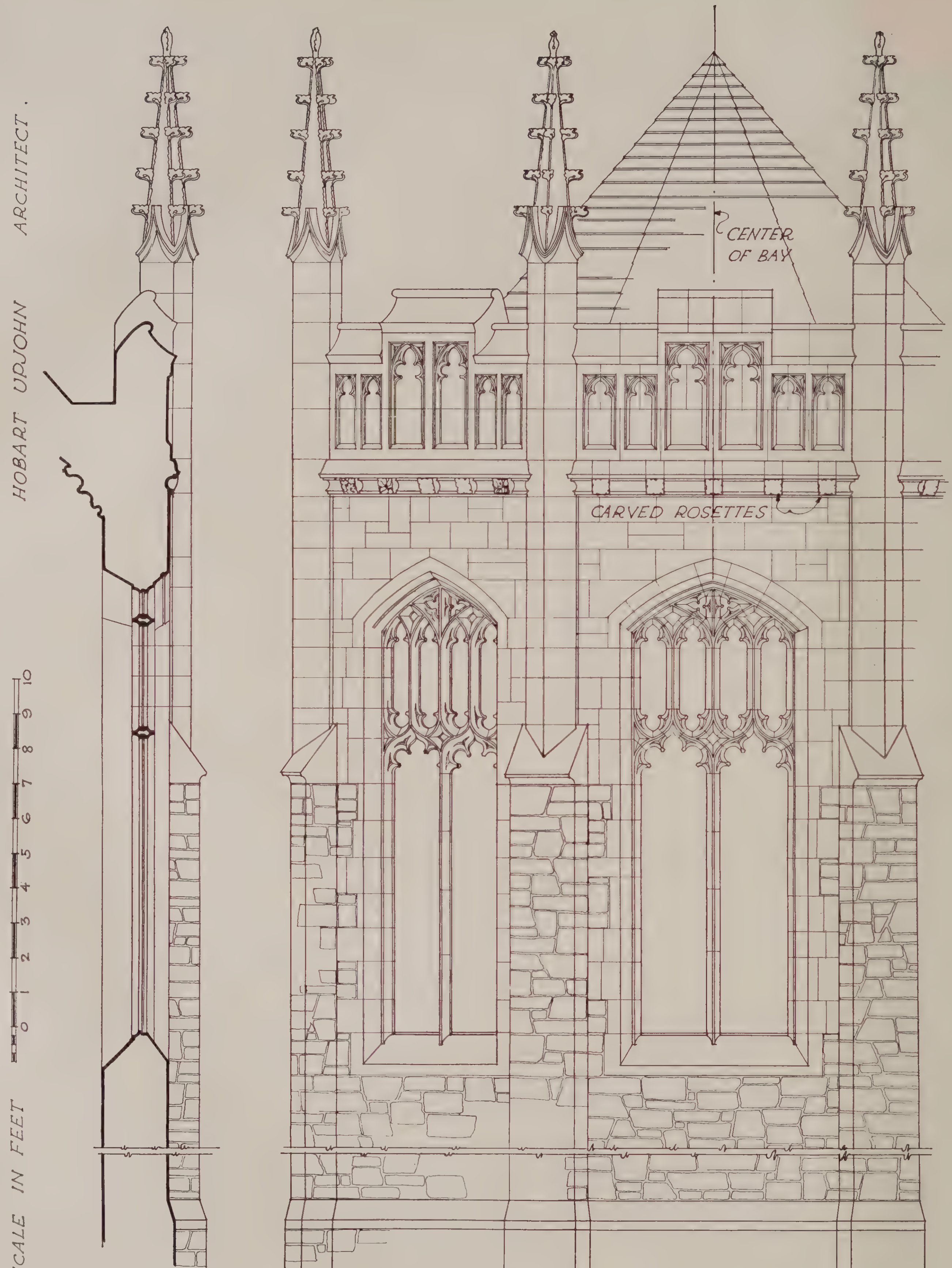
The same excellent use of material characterizes the interior. Considerable use has been made of plaster of varying textures appropriate for different parts of the building. The plaster in the nave, where there are several large, unbroken wall surfaces, is of bold, rugged character tinted a rich cream color and applied to the stone of the structural walls. The piers and pointed arches which carry the clere-story and divide the nave from the two narrow aisles are built of the stone used for



The Flatbush Presbyterian Church, Brooklyn

FLATBUSH PRESBYTERIAN CHURCH, BROOKLYN, N.Y.

HOBART UPJOHN ARCHITECT.



SECTION - ELEVATION OF APSE -

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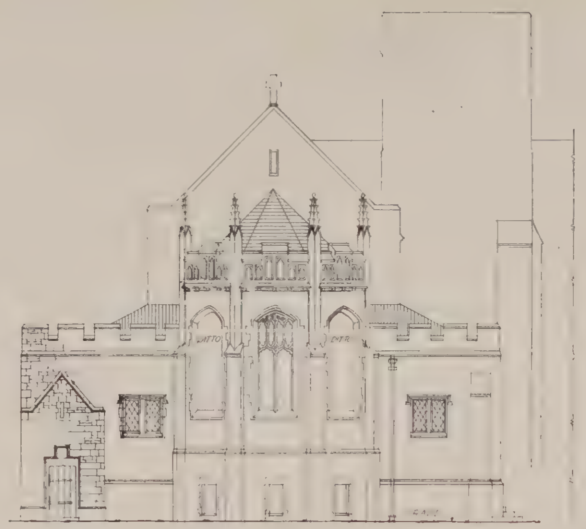
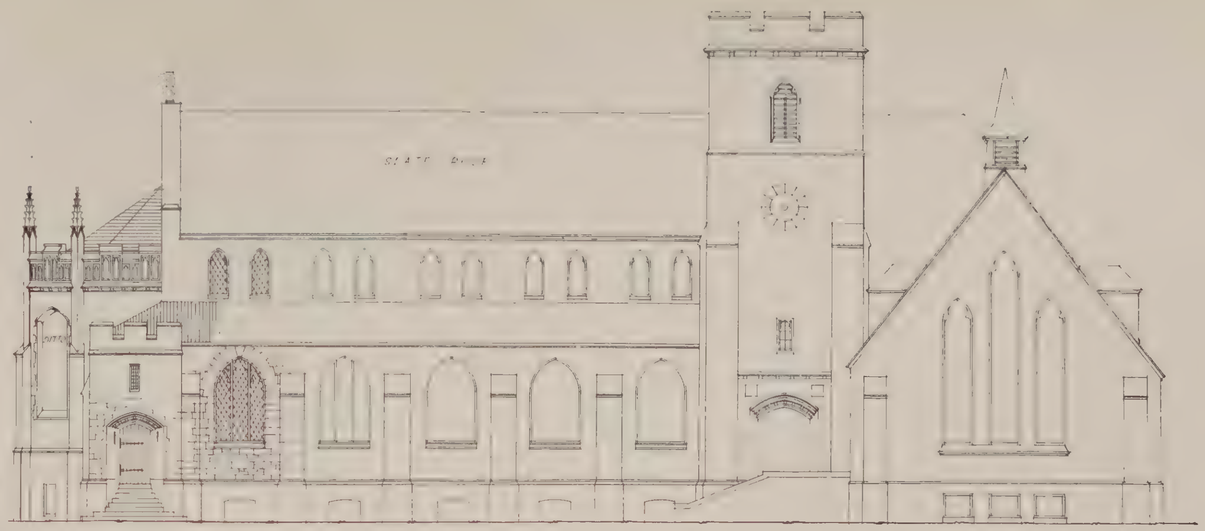
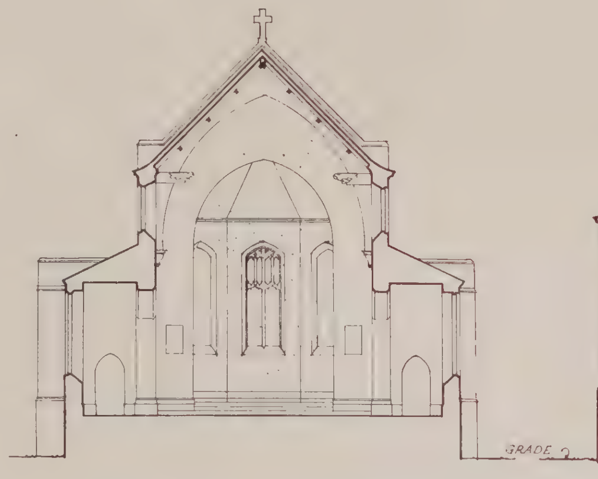


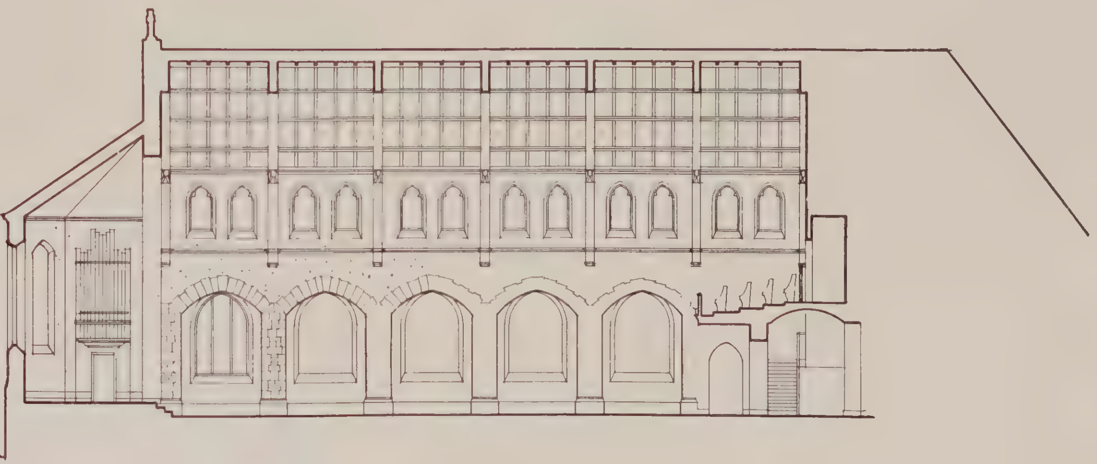
· FOSTER AVE. ·



· E. 23RD STREET ELEVATION ·



· CROSS SECTION ·



· LONGITUDINAL SECTION ·

FLATBUSH PRESBYTERIAN CHURCH, BROOKLYN, N.Y.

SCALE IN FEET 0 10 20 30 40 50

HOBART UPJOHN ARCHITECT.

the exterior. The simple corbels from which spring the principal roof timbers are of stone, and the exposed roof itself is of wood, simply treated. The rest of the interior woodwork, the carved wainscot within the apse, the communion table, lectern and pulpit, and the plain wood benches which are used instead of pews, all have a simple finish. Floors are laid of gray cement, and the lighting fixtures are of iron of a rather severe design making use of lights in candle forms.

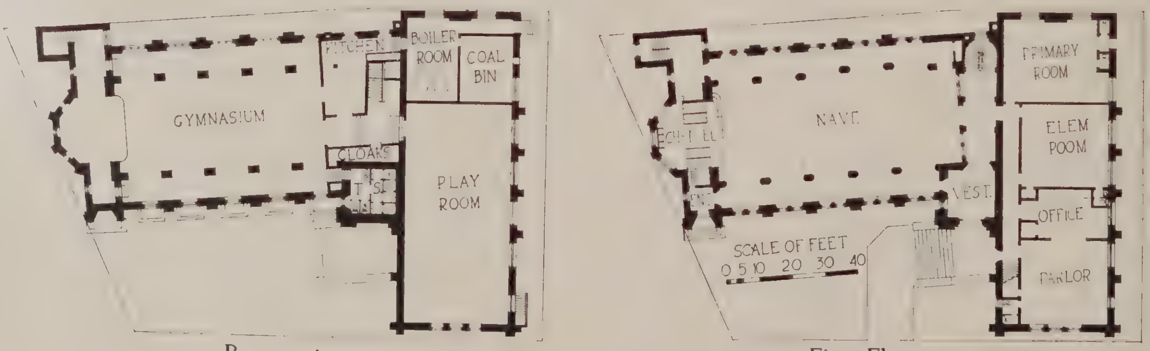
But the plan of the church is perhaps of even greater interest than either its design or the excellent use of materials which has been made. As has already been suggested, the work of the church includes social service of many kinds in the neighborhood, and the buildings have been planned with this in mind. The main entrance, beneath the tower, opens into a vestibule, paved with stone, which leads directly into the nave at the left, while the hall, which is just ahead, also gives access to the nave and at the right to the administration rooms of the church, the study and offices of the pastor and his secretaries, and several spacious and well lighted guild rooms which are used for meetings of clubs and societies of different kinds connected with the church.

The space above the hall or corridor which is entered from the vestibule, dividing the nave of the church from the social service portion, is utilized as a gallery which when needed will add considerably to the seating capacity of the nave.

This entrance hall already mentioned opens onto a stairway leading to the basement and the upper floor. This upper floor contains a large assembly hall, open to the lofty, high pitched roof, as this room occupies space which was once the upper part of what was the nave of the original church. Like the guild rooms just below, this spacious assembly room is well lighted, since the buildings are set sufficiently far within the property lines of the plot to insure there being unobstructed light on all sides. The basements of the buildings, excepting such parts as are required for boiler room and places for the storage of fuel, are devoted to work among the boys and men of the locality. They include a gymnasium, with toilets and shower baths, and a large club room where the men of the parish hold their meetings. This floor also contains a kitchen used for the social meetings which are often held in the gymnasium and the club rooms and which require service.

The interior of the nave of this church is typical of a tendency in the arrangement of ecclesiastical interiors, which appears to be gaining ground among many of the evangelical religious bodies. Instead of using as the chief ornament of the sanctuary the tall colored and gilded pipes of an organ, more liturgical use is now generally made of a chancel, semicircular, hexagonal or octagonal in form, with the communion table near the center, the clergy sitting beyond and facing the people, and the singers sitting on benches or stalls placed "choir fashion," all suggesting what was the custom in the early Church, and what is still the use in many of the Roman basilicas. Well arranged, but at the same time kept within its proper place as an important adjunct of public worship, is the organ, which instead of being emphasized and made much of as the most important architectural or decorative feature, is here placed within its chamber at one side of the chancel, its tall pipes filling the arch through which the organ chamber opens into the choir. The console here is placed at the opposite side of the chancel, thus giving the organist a far better opportunity of judging or gauging the effect of the organ's share in the music than could possibly be had were his seat and the manual or keyboard placed directly beneath the organ pipes where the volume of sound would frustrate any attempt to judge of its value.

Probably with a view to encouraging the presentation of memorials, and at the same time to prevent the grave injury to the interior of the church were thoughtless or indiscriminate giving encouraged, Mr. Upjohn has designed in keeping with the architecture and to agree with the rest of the furnishings, the pulpit, lectern, communion table, choir stalls and other accessories, many of which have been presented and are now in place within the sanctuary.



Basement

First Floor

The Flatbush Presbyterian Church, Brooklyn
Hobart B. Upjohn, Architect

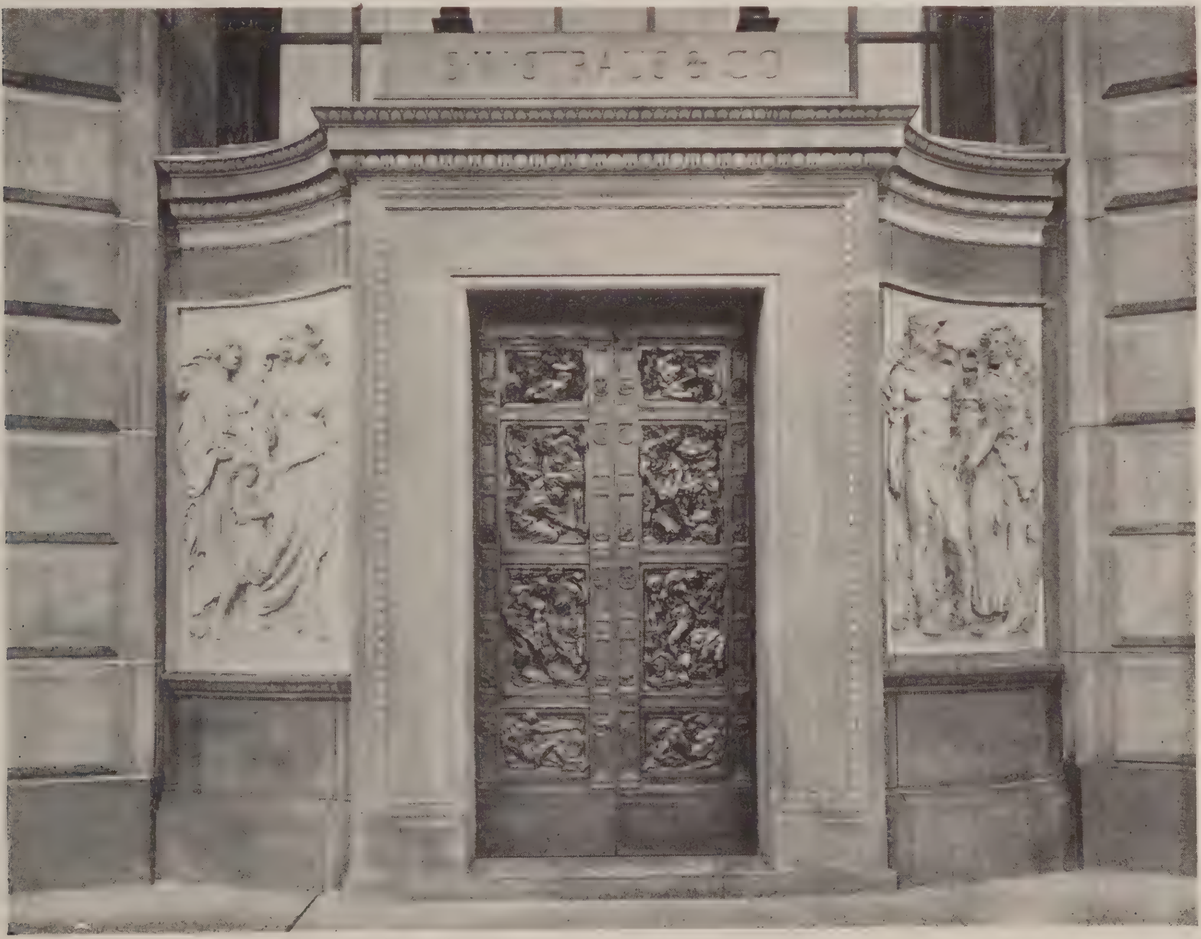
The Straus Building, Chicago

GRAHAM, ANDERSON, PROBST & WHITE, Architects

By LEO J. SHERIDAN AND W. C. CLARK

THE problems involved in the creation of a modern office building are numerous and difficult. Selection of the most appropriate site; choice of architect and general contractor; formulation of general and detail plans for an improvement that will mean the most effective utilization of the site; developing an efficient, flexible organization to collaborate with architects and contractors; supervision of construction to see that the owner's ideas as reflected in the plans and specifications are being carried out with fidelity and dispatch; inauguration of a renting and publicity campaign which will assure maximum occupancy by tenants of the desired kind as soon as possible after the completion of the building; the selection and training of a building organization which will assure efficient service to the tenants from the opening day; these are some of the major tasks which confront the owner-builder in the year or year and a half following the inception of his project. Rarely does the task of management call for such a combination of qualities, —the capacity for scientific analysis of a problem; the balanced judgment, which carefully weighs pros and cons and comes to the right conclusion; the imaginative foresight which visualizes future trends in city development and in economic values; the faculty of handling men so as to induce maximum effort and eliminate friction; the ability to build and maintain a flexible organization, capable of adjusting itself rapidly to ever-changing conditions, and the knowledge of psychology which will insure the successful formulation and execution of a campaign designed to create public interest in and develop good will for the new enterprise. Rarely, also, does the task of management call for the exercise of its functions under such pressure as to speed.

Fortunately or unfortunately, the operations involved are not repetitive. Most individuals build a modern office building only once in a lifetime. There is, therefore, no opportunity of learning from one's own mistakes. That is not true, of course, in the case of an investment house such as S. W. Straus & Co., which has for years specialized in the financing of large building projects of different types in all parts of the country. For this reason, and in the hope that it may be of some value to others who



Detail, Main Entrance, Straus Building, Chicago

Doorway in Main Banking Room

may be confronted with similar problems in the future, there is set down in this article something of its experience in solving the problems connected with the building of the new Straus Building on the corner of Michigan Avenue and Jackson Boulevard, often referred to as Chicago's finest office building, a magnificent structure in the heart of the city.

For some years S. W. Straus & Co. had been planning the construction of a modern office building in Chicago, which should not only provide an efficient home for its rapidly expanding activities, but at the same time constitute a fitting commemoration of the completion of its more than two score years of successful real estate operations in that city, an enduring symbol of its faith in the permanence of that business, and its contribution to the realization of the dream of "Chicago, the City Beautiful." In the course of a continuing investigation of the present advantages and future possibilities of various districts and sites in the downtown quarter of Chicago, the corner of Michigan Avenue and Jackson Boulevard had been selected as the most suitable location for the proposed improvement. This site, offering a key position in the famous Michigan Avenue skyline, overlooking Grant Park and the lake, and at the intersection of the city's two greatest thoroughfares, seemed to combine in maximum degree those qualities of accessibility and environment which assure commercial success and make possible imposing treatment. Negotiations looking toward a purchase of the site had been previously undertaken, but it was not until after the death of the late owner that the unwillingness of the executors of his estate to carry forward to completion his plans for its development made it possible for S. W. Straus & Co. to secure possession and begin the realization of its plans. It meant the final fulfillment of many hopes.

The unusual combination of circumstances surrounding the transaction secured favorable terms to the purchaser, and yet the site involved a commitment of several million dollars. Extreme haste, therefore, was necessary, if the period during which this huge investment would be unproductive was to be reduced to a minimum. At the time of purchase no plans had been drawn. It is true, of course, that the plans of the previous owner were well under way, and that part of the steel for his project had been rolled and fabricated. Incidentally, this steel contract was taken over with the property, which meant considerable saving, since the price of steel delivered at the building had increased $30 per ton since the time the original contract had been let, and only 1,000 tons of the 12,000 tons under contract had been actually fabricated. This part was sold; the rest was held subject to revision of plans and specifications. Aside from this, however, all the work of preparation and detailed planning had to be crowded into a very brief period, if, as was soon decided, the building was to be ready for occupancy on May 1, 1924, leaving only about 16 months for the extensive work of planning and construction.

No time was lost, therefore, in beginning opera-

Office of One of the Vice-Presidents

tions. Immediately after the purchase of the site Graham, Anderson, Probst & White, a firm of national importance known not only for the impressiveness of the office buildings which they have designed, but also for the efficiency of their layout and equipment, were engaged as architects. This was followed up immediately with the selection of the Thompson-Starrett Company as general contractors. This firm had constructed such buildings as the Woolworth and the Equitable Buildings in New York, the Union Trust Company's building in Cleveland, and the Continental and Commercial National Bank Building in Chicago, and had established an enviable reputation for ability to handle such huge projects and deliver them on time under guarantee.

After engaging architects and general contractors, Meyer, Strong & Jones, of New York, well known in both East and West for their experience in office and bank building work, were retained as consulting engineers. They were assigned to collaborate with the architects on the development of the plans and specifications in connection with the heating, lighting, ventilating, elevators and general electrical work. Their work ended when the plans and specifications were accepted and the contracts let. As a further safeguard, an additional consulting engineer, Milton C. Hartman of Chicago, was retained to collaborate with the architects and the other consulting engineers and to follow through the construction of the building. Specifically, his task was to see that the actual construction was in accord with the plans and specifications and to assist the architects in ironing out any difficulties that might arise in the course of construction, with a view to hastening completion.

But despite this line-up of architectural and engineering talent, and despite the fact that S. W. Straus & Co., because of its extensive experience in financing large buildings in all the large cities of this country has in its files a vast fund of data on the planning and equipment of various types of buildings, the owners of the proposed structure decided to go one step further, so desirous were they of assuring the best possible plans for their project. Mindful of the importance of the point of view of the tenants who occupy the commercial building and also of those who actually operate it, they determined to draw upon the storehouse of hard-won practical wisdom of the most neglected man in the building industry,—the building manager, upon whose shoulders falls the burden of making the property a commercial success, all too frequently in spite of the mistakes of others. Early in April, 1923, therefore, they requested the National Association of Building Owners and Managers to call the first meeting of its kind ever held, a committee of the Building Planning Service, consisting of many of the best known building managers from all parts of the country, commissioned to go over the tentative set of plans prepared by the architects and engineers, and make such recommendations as in their opinion would increase operating efficiency. Suffice it to say that suggestions were made by this com-

Window in Rear Wall of Banking Room

Office of the Senior Vice-President

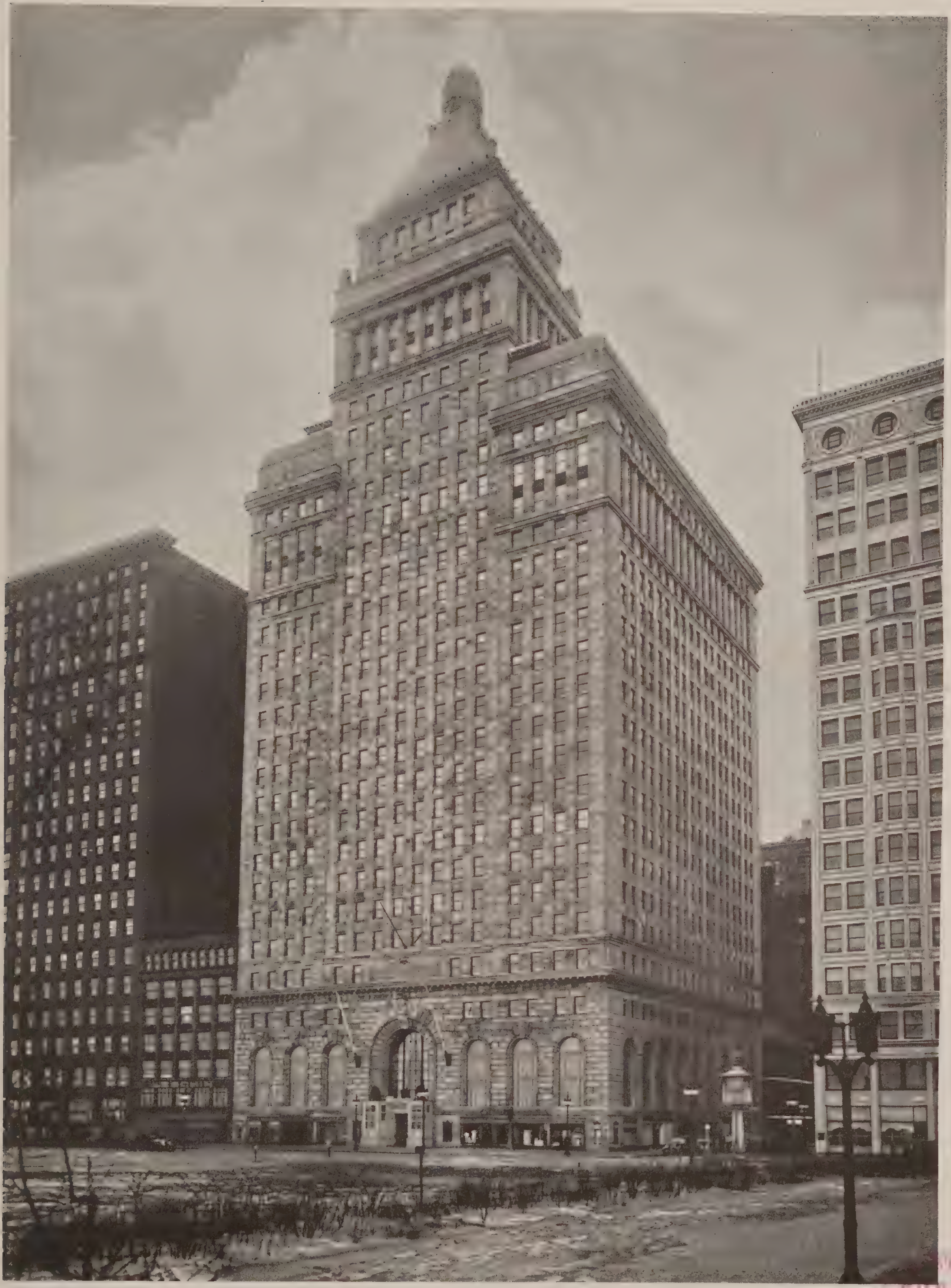
mittee which increased the rentable area and lowered the cost of construction, on the basis of the tentative plans prepared, by about $250,000. At the close of the conference the owners had the satisfaction of hearing from this group of men best qualified to speak from the points of view of both owner and tenant the announcement that the plans represented a development of the site as nearly perfect as it was humanly possible for it to be made.

Main Stairway to Banking Room

Meanwhile the organization which was to consist of the owners' own personnel and to function for them directly had been rapidly formed. At an early stage in the proceedings a coördinating and directing authority had been set up in the form of a building committee of five men, among whom the work involved in this great building operation was distributed. The work of this committee was split up into four major divisions,—Construction, Renting, Publicity, and Operating. Of these the first three, of course, were most active during the construction period. Further, between the three last named divisions the closest coördination was maintained. One member was in immediate charge of the construction division, working with an assistant superintendent, three accountants, and the requisite clerical staff. All of these men were on the payroll of the controlling interest, and their whole time was devoted to construction work. The accounting section rechecked all figures of the architects and contractors on all work done on the basis of unit prices, and kept a watch over all costs and expenditures. Throughout the whole period of construction, extreme vigilance was exercised to maintain a fully developed set of accounts and a correct record of all extras or credits as they developed. But perhaps more important was the coördination which the staff was able to give the architects and contractors by way of expediting construction. A large building operation resembles either a madhouse or a happy family. In a project of this kind it is absolutely vital to have not only an organization so manned that friction arising out of personal relations will be reduced to a minimum but also an organization so controlled and so flexible that all emergencies can be handled and decisions made without delay. The "happy family" relationship was characteristic of the construction process on the Straus Building; if it had not been, completion of the building in the record time contracted for would have been utterly impossible. Credit must be given to the personal representatives of the architects and general contractors who were assigned to the work of supervising and expediting construction, and to all the sub-contractors who had any part in the undertaking, as well as to the members of the building committee itself for the results.

One serious mistake which the owner who is erecting an office building for the first time is very likely to make is too great a delay in the appointment of his building management staff. The pressure of the immediate work of constructing the physical plant for his enterprise is so great that he is likely to forget all about the equally important task of making adequate preparations for setting the enterprise upon its feet as a "going concern" as soon as possible after the construction of the plant. For let it not be forgotten that the operation of a modern office building is a great business enterprise. A large project like the Straus Building, for instance, is a great business concern, having on its payroll from one to 300 employes, selling a difficult and many-sided service to four or five thousand established customers (the tenants who occupy it) and a less varied service to twenty or thirty thousand additional customers (those who daily visit the building and its tenants), and bringing in an annual gross income counted in millions of dollars. It has already been indicated how important it is not to allow a valuable site to stand idle, and it is much more important not to let that site plus a more expensive building remain wholly or largely unproductive, even for a day. But if such loss is to be prevented, the owner-builder must, as soon as possible after his plans are completed, arrange for an efficient and adequate staff to seek out customers for the service.

The operating division was created about four months prior to the opening of the building. Therefore it was able to complete the operating organization in sufficient time to insure that each man was properly trained in his duties before any service had to be performed for tenants. Much stress was laid on this detail. The purpose had been to set new standards, if possible, not only in construction, layout, and equipment, but also in the operation of this class of property. From the moment the site was purchased, the thought had been uppermost in mind of developing that intangible, elusive something which is called "atmosphere" and which comes only from exceptional service combined with the right environment and catering to the right class of tenants.



Photos. Edward L. Fowler

Plans on Back

THE STRAUS BUILDING, CHICAGO
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

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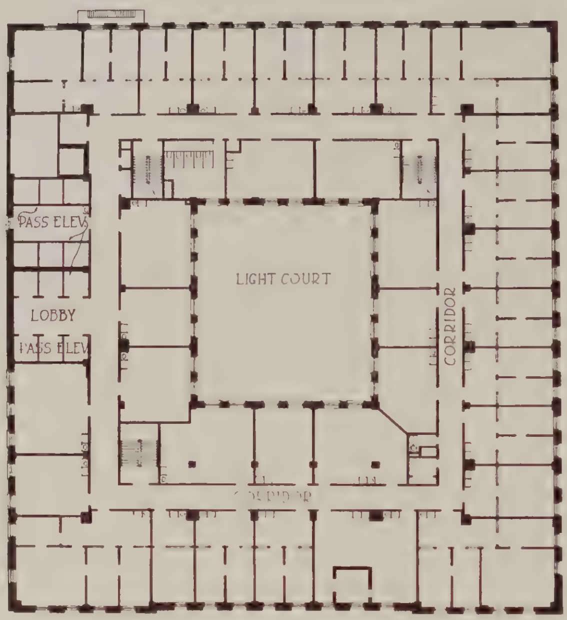
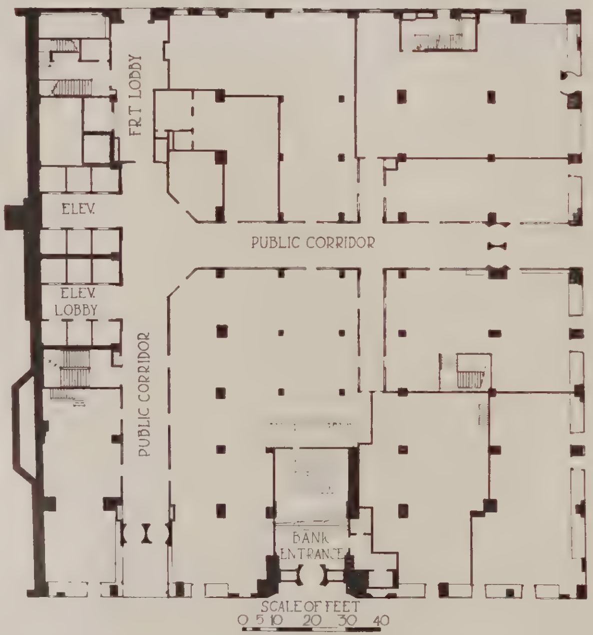
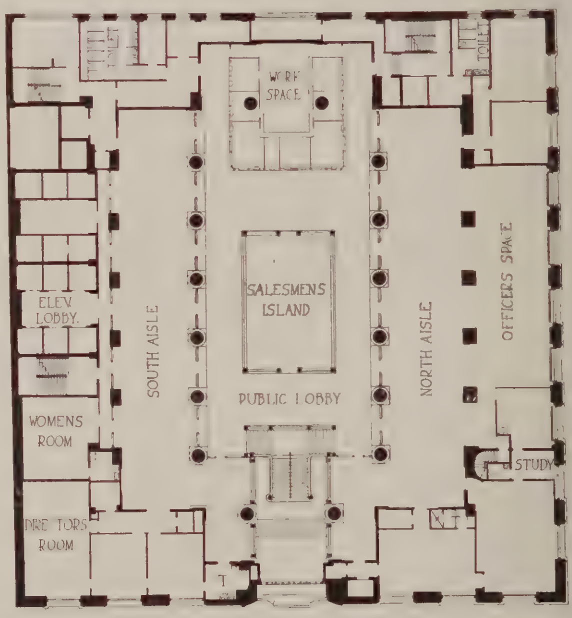


TYPICAL FLOOR



GROUND FLOOR



MAIN FLOOR

THE STRAUS BUILDING, CHICAGO

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

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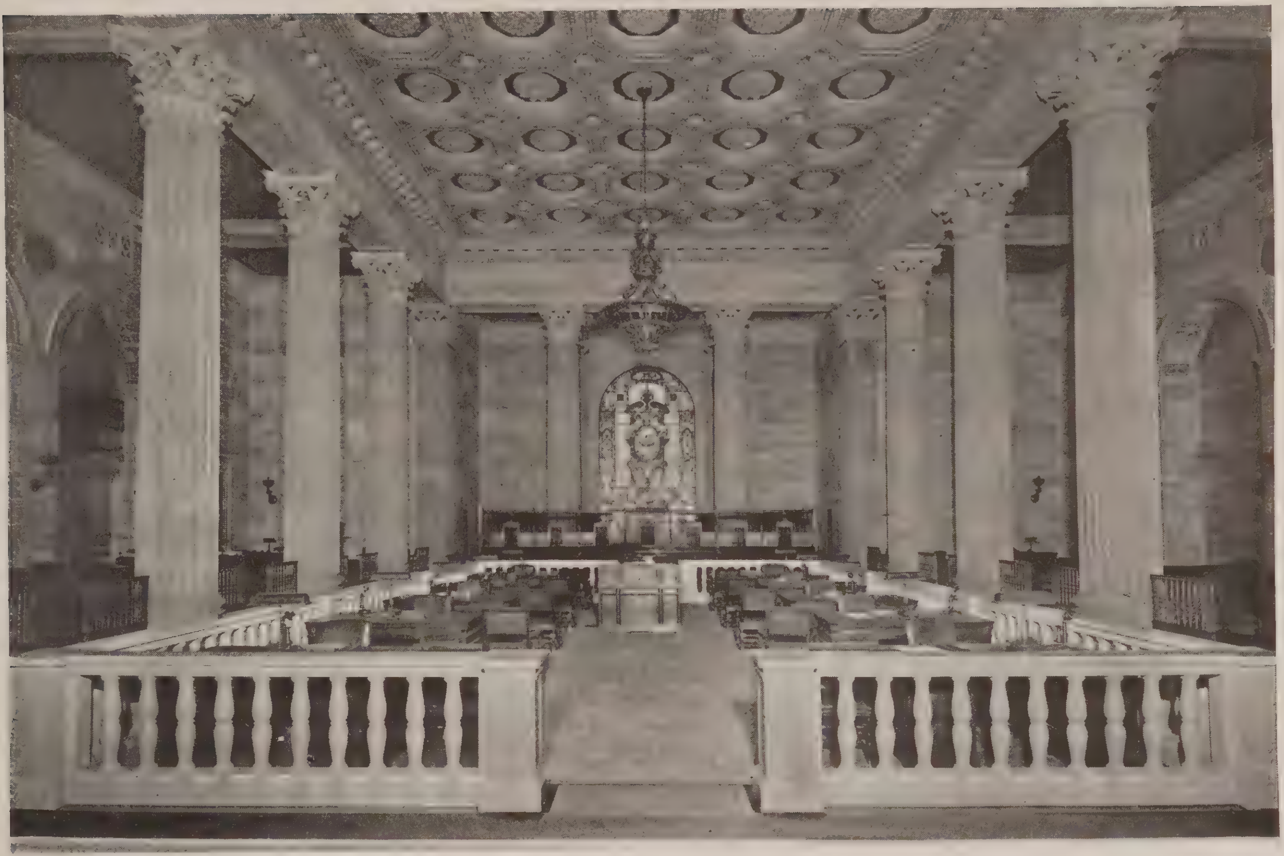
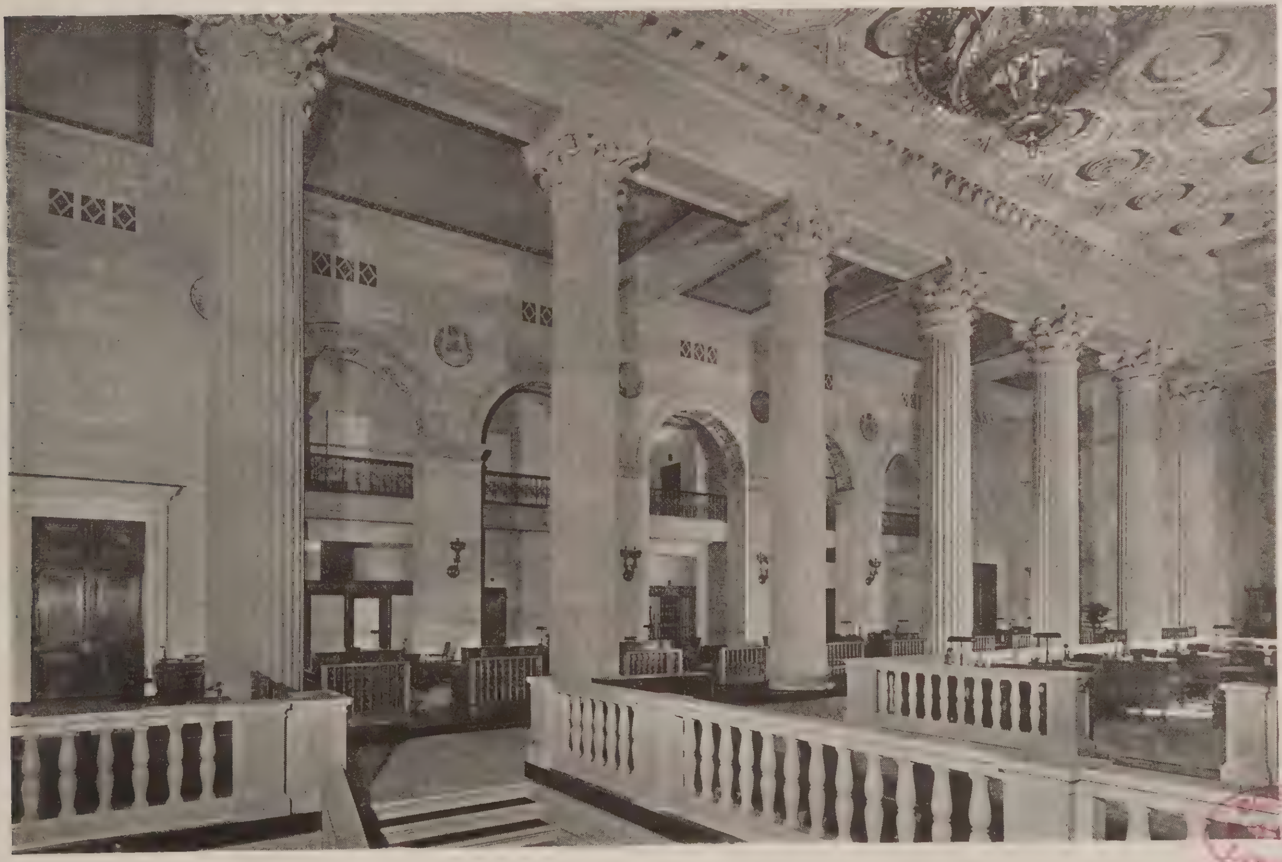


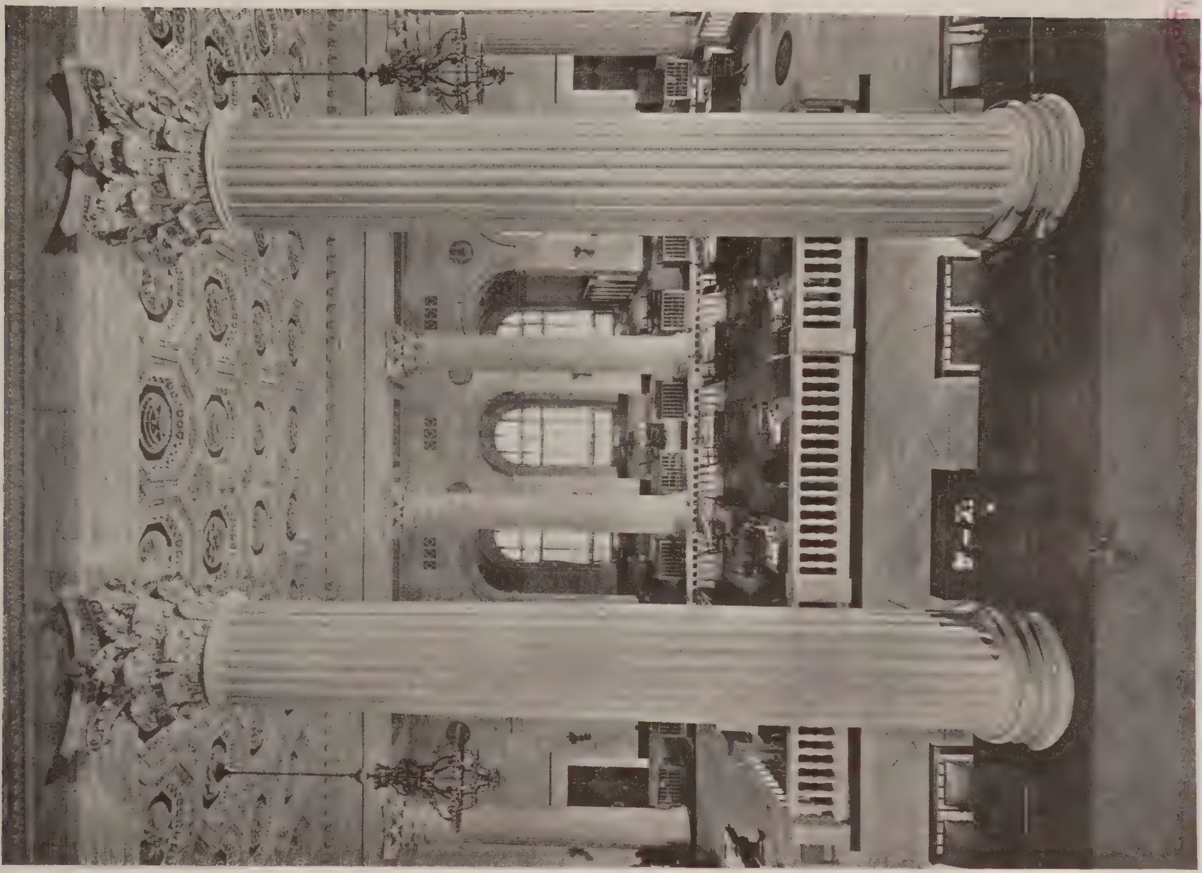
GENERAL VIEW OF BANKING ROOM



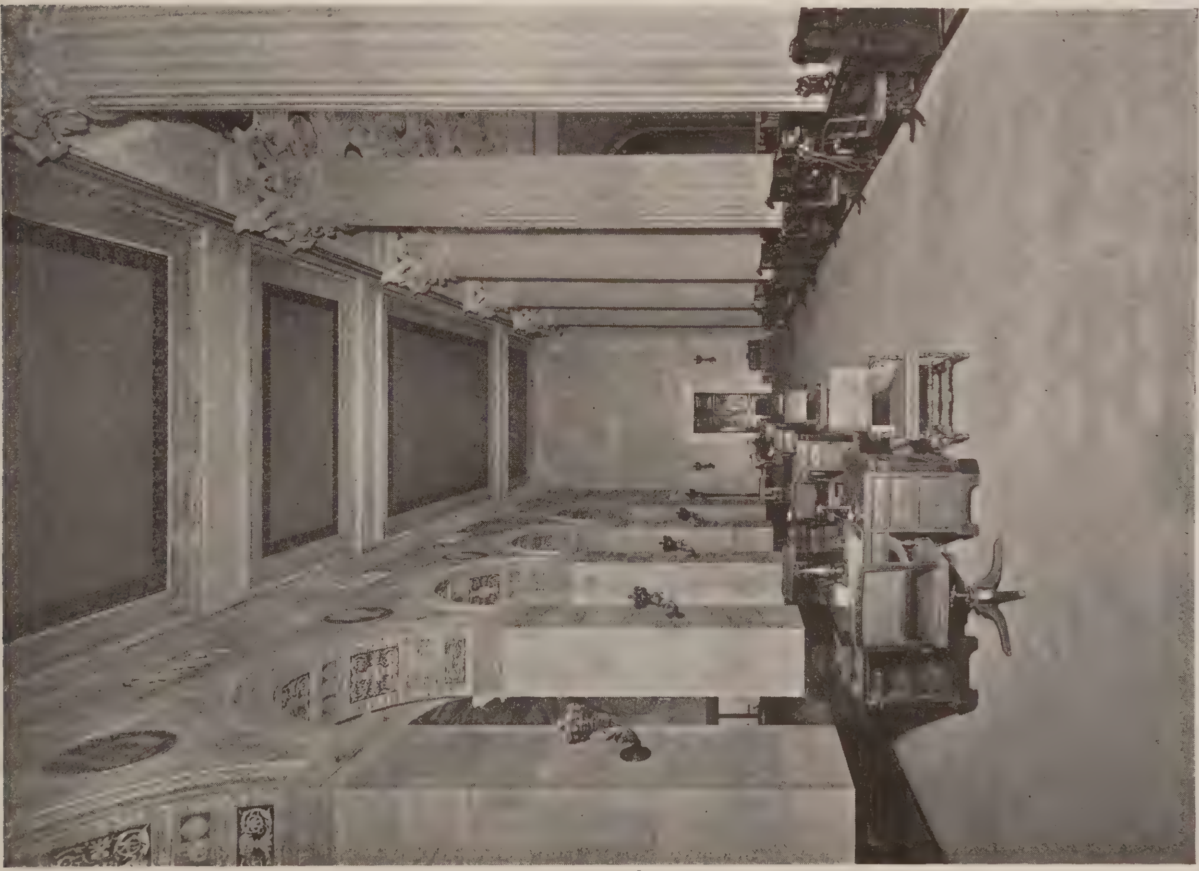
SIDE VIEW OF BANKING ROOM FROM ENTRANCE STAIRWAY

THE STRAUS BUILDING, CHICAGO

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



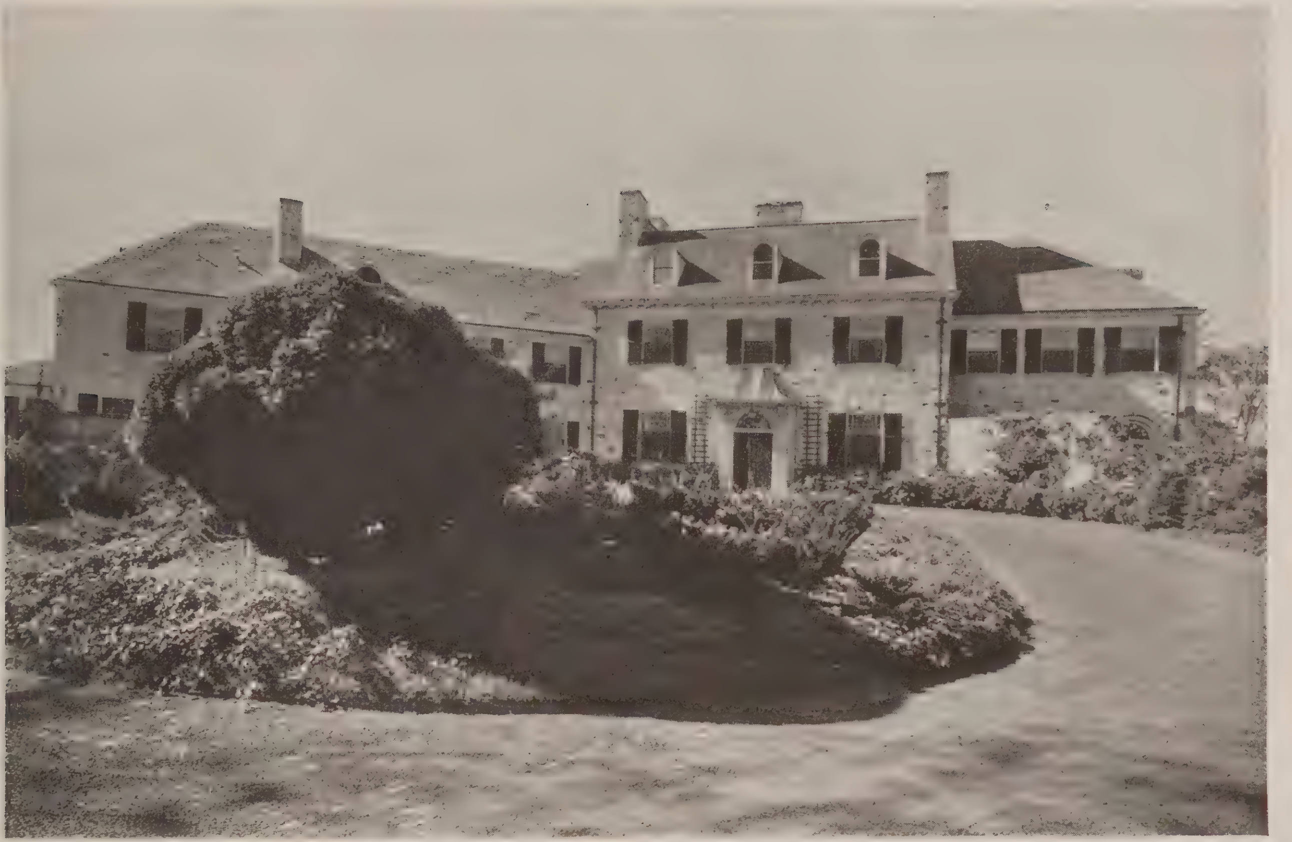
OFFICERS' ENCLOSURE AT CENTER OF BANKING ROOM



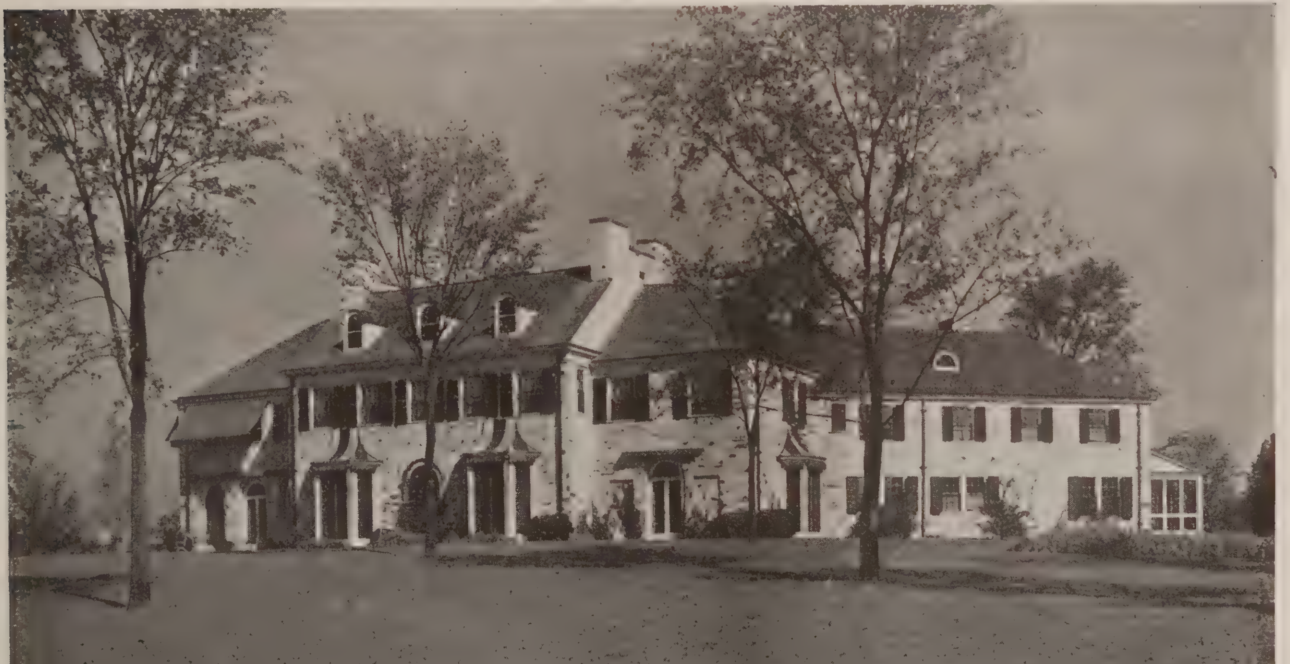
ARCADE AT WEST SIDE OF BANKING ROOM

THE STRAUS BUILDING, CHICAGO

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



ENTRANCE FRONT

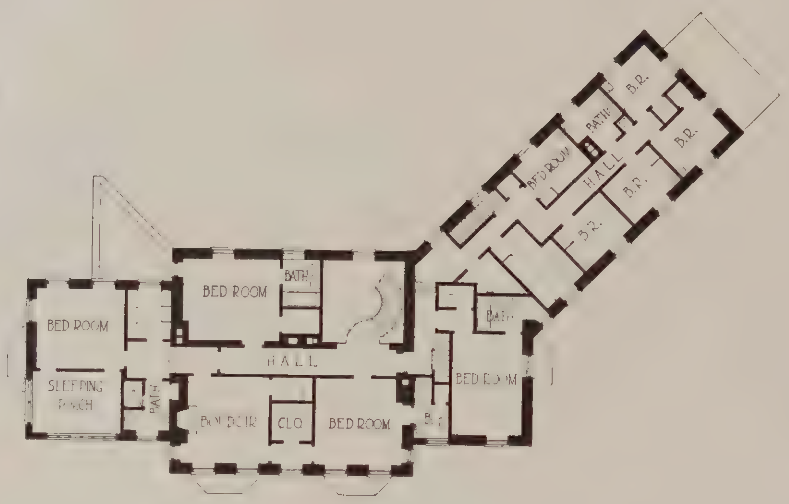


Photos. John Wallace Gillies

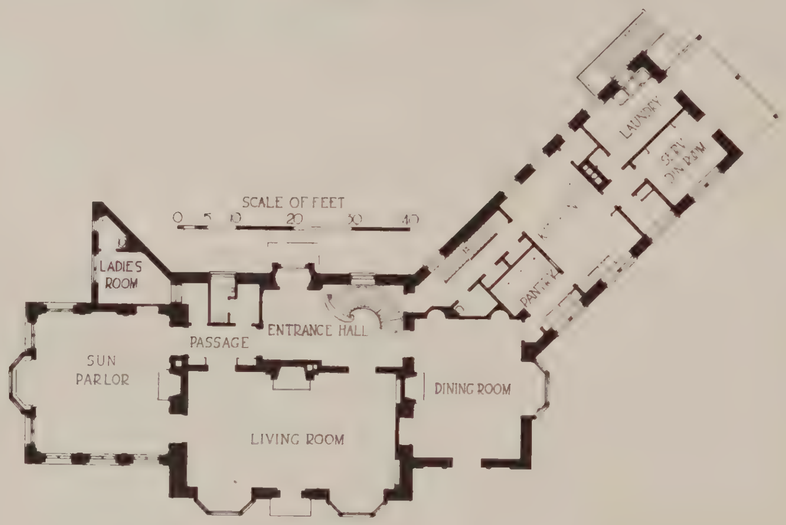
Plans on Back

GARDEN FRONT

HOUSE OF J. H. CARSTAIRS, ESQ., ARDMORE, PA.
OFFICE OF JOHN RUSSELL POPE, ARCHITECT



SECOND FLOOR



FIRST FLOOR

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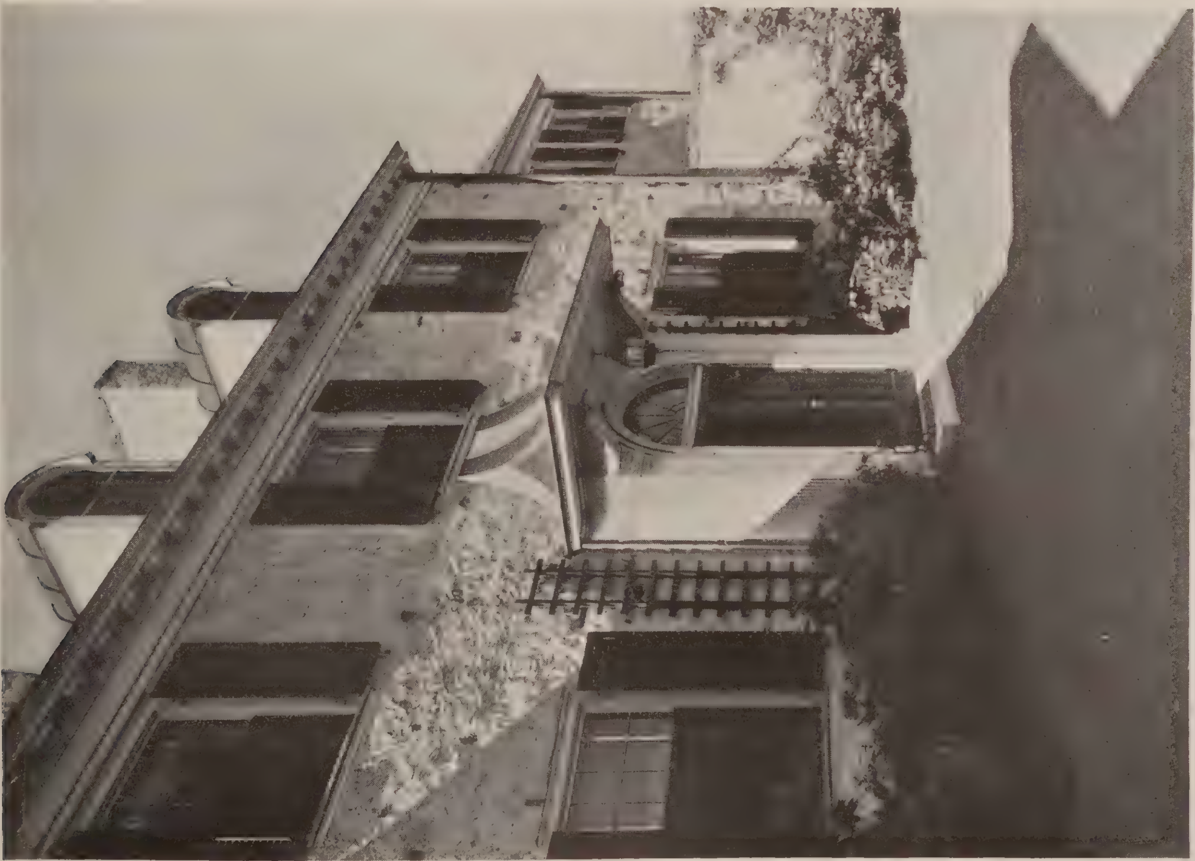
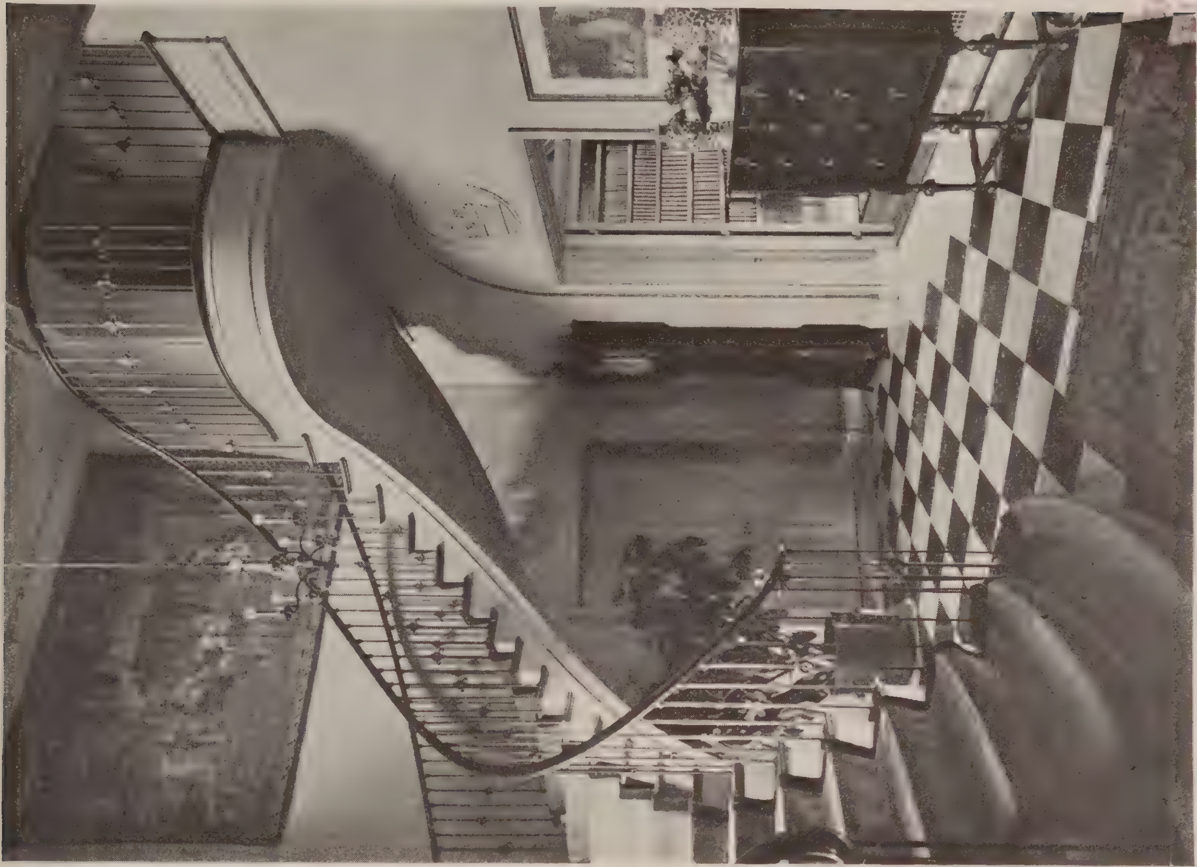


DETAIL, ENTRANCE DOOR



STAIRCASE ENTRANCE HALL

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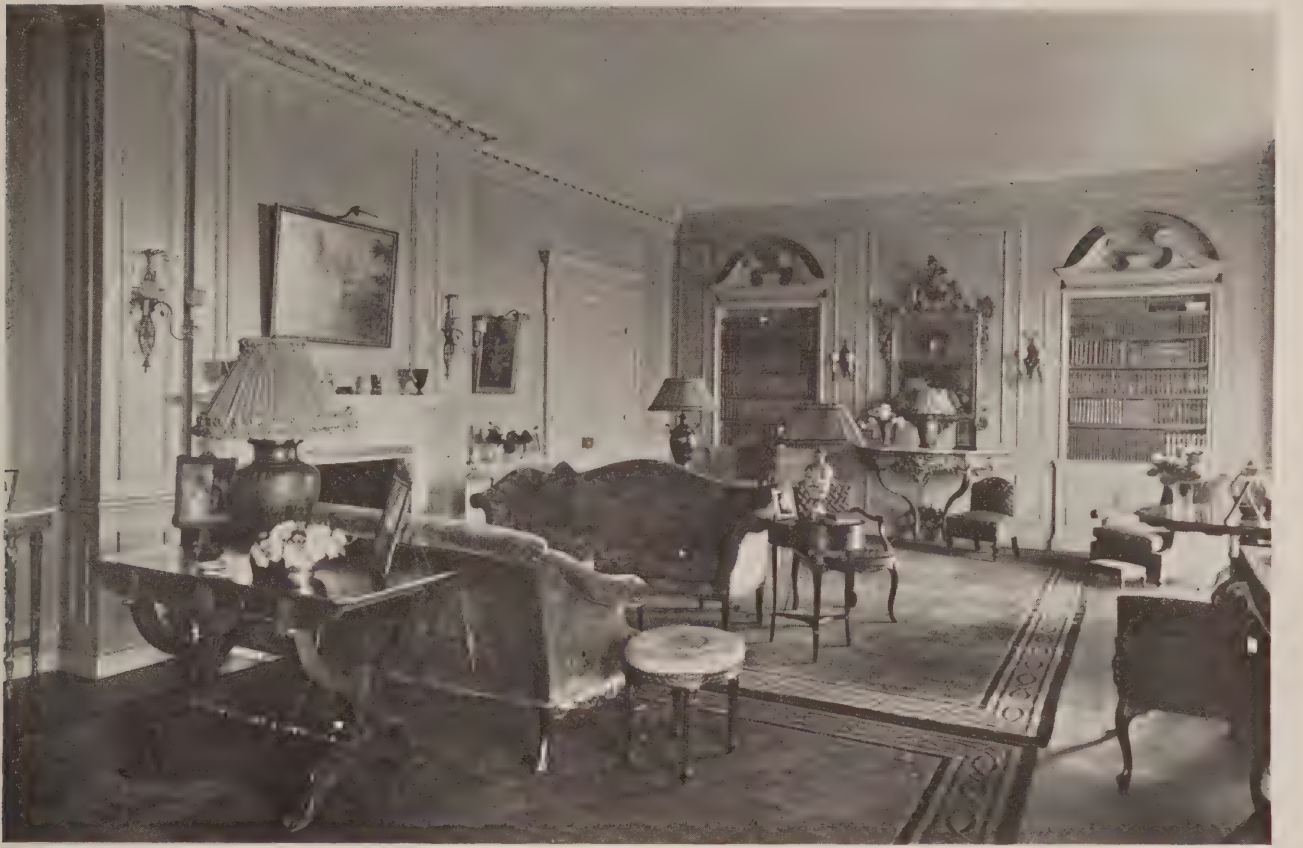
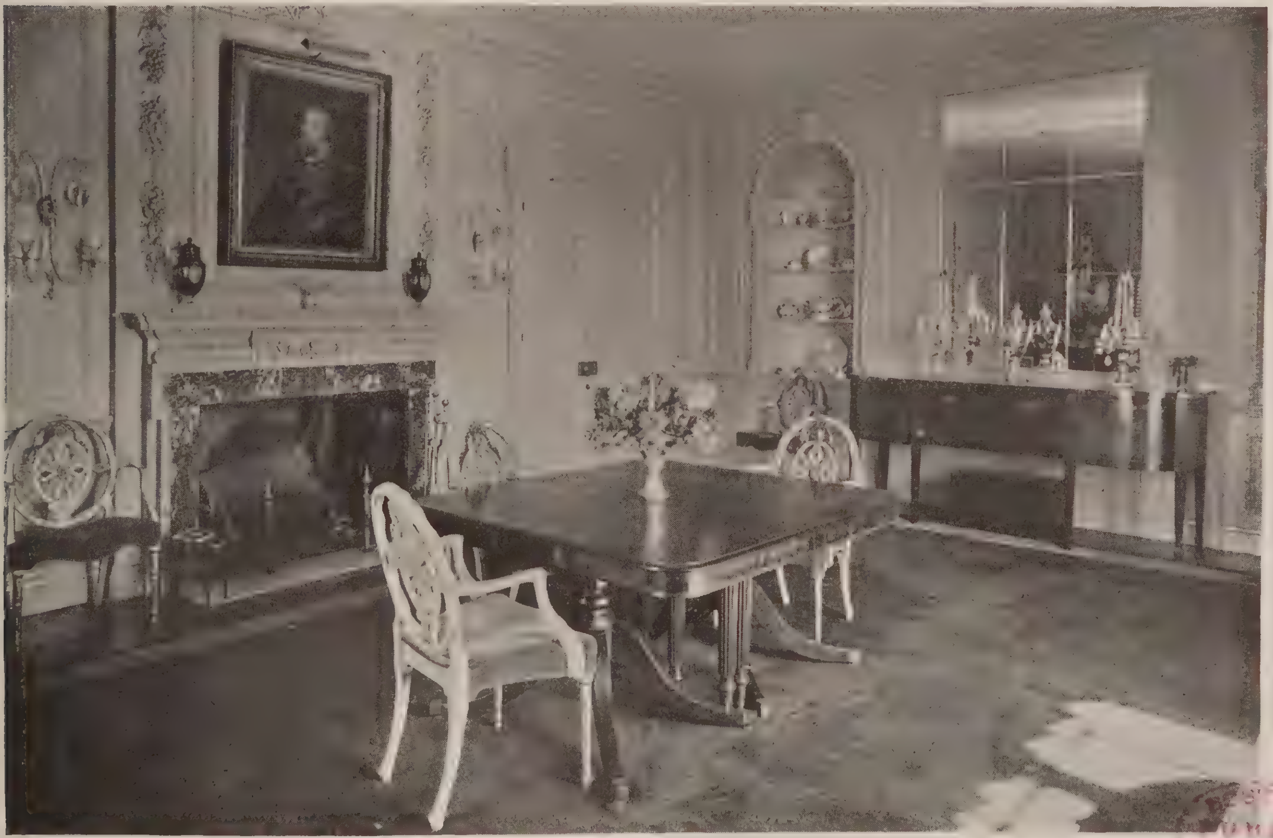


LIVING ROOM



DINING ROOM

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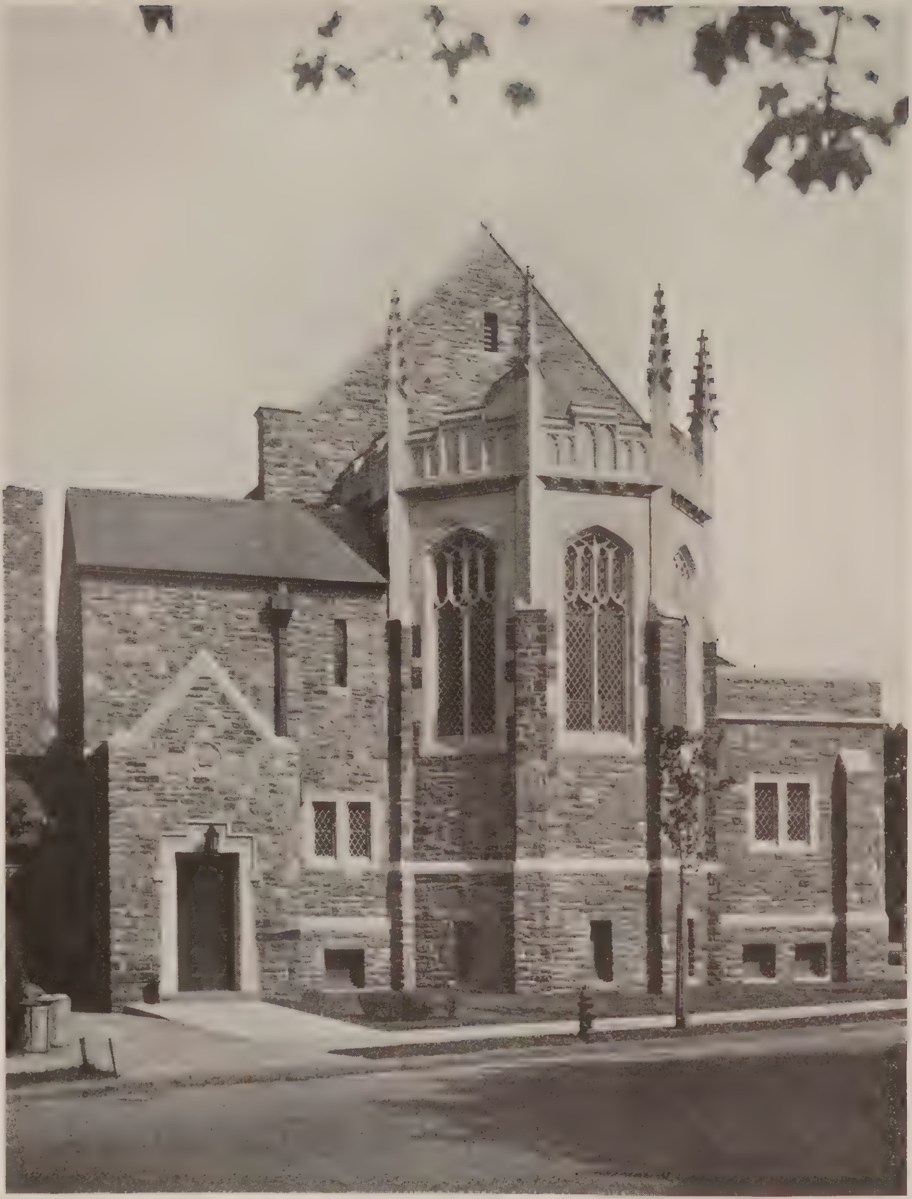
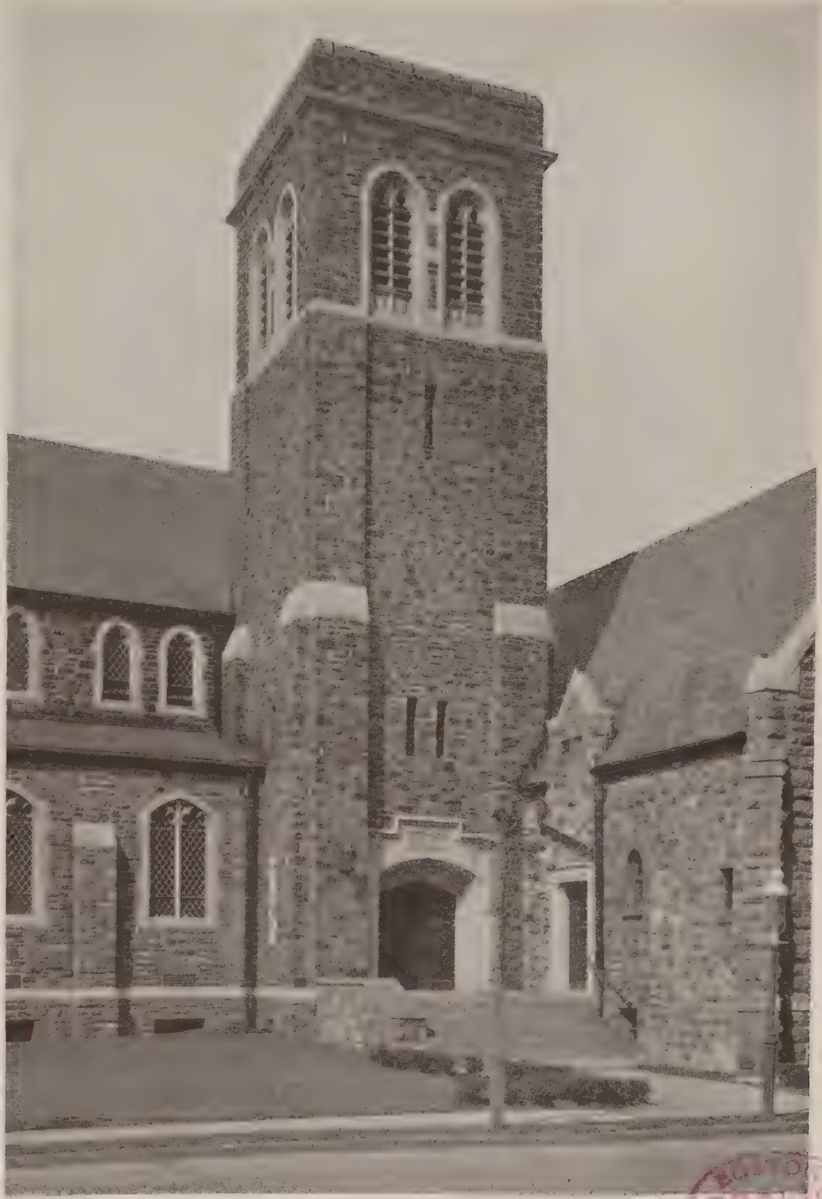


Photos. Tebbs & Knell, Inc.

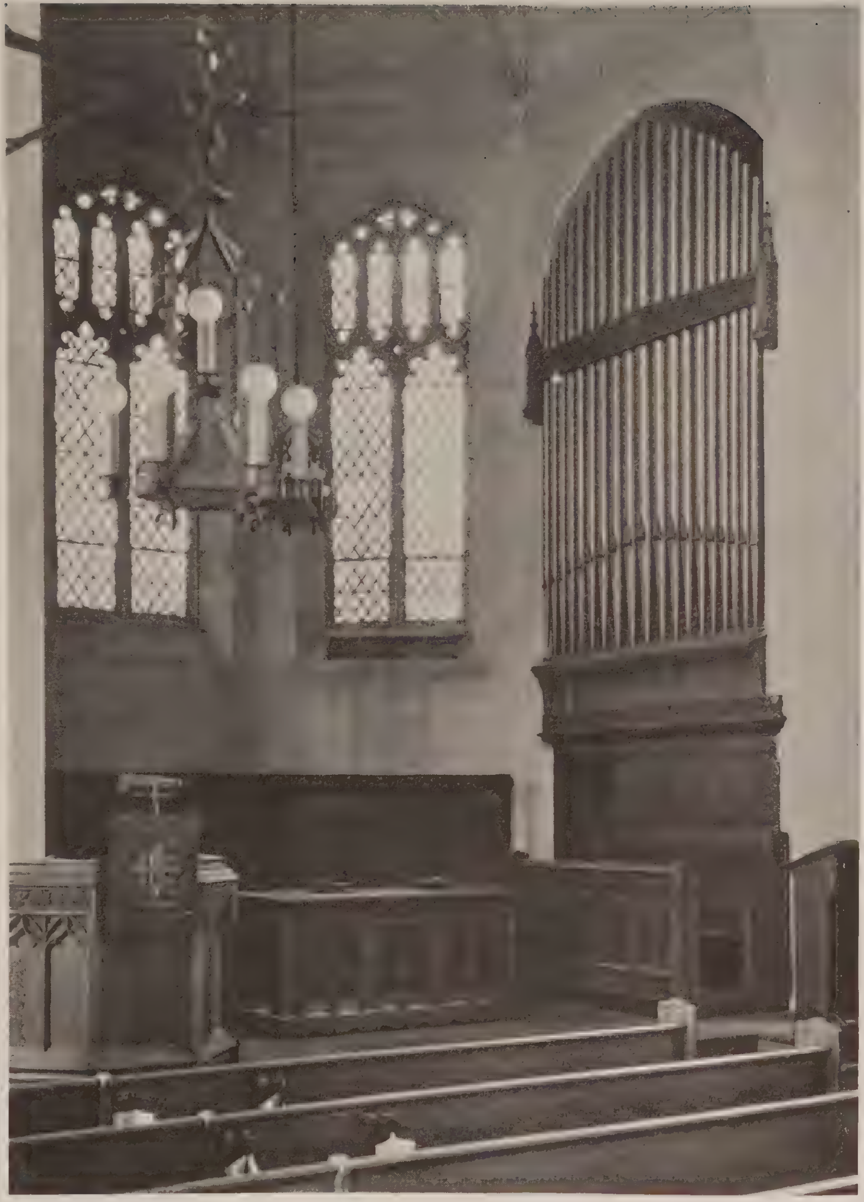
DETAIL OF EAST END



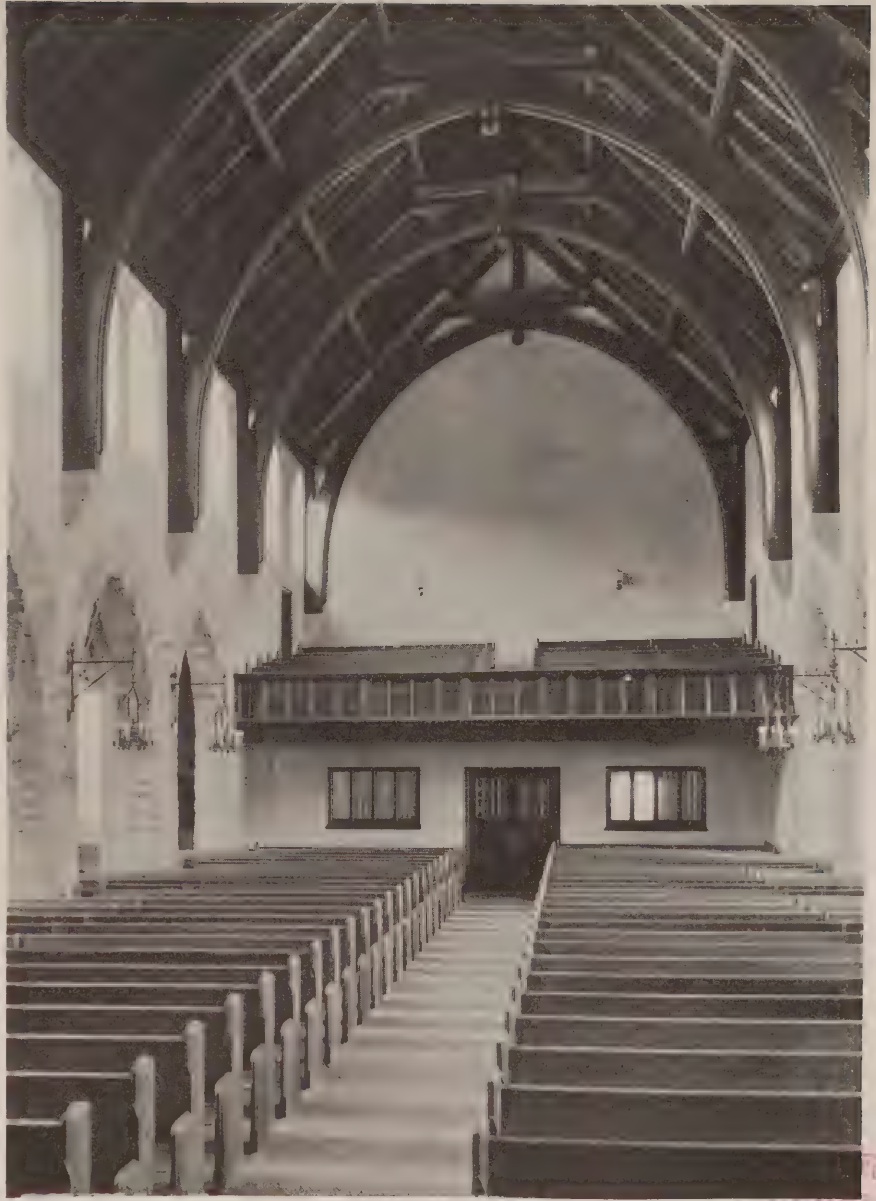
Plans on Page 223

DETAIL, ENTRANCE TOWER

FLATBUSH PRESBYTERIAN CHURCH, BROOKLYN
HOBART B. UPJOHN, ARCHITECT



DETAIL OF CHANCEL



NAVE, LOOKING WEST

FLATBUSH PRESBYTERIAN CHURCH, BROOKLYN, N. Y.
HOBART B. UPJOHN, ARCHITECT

BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

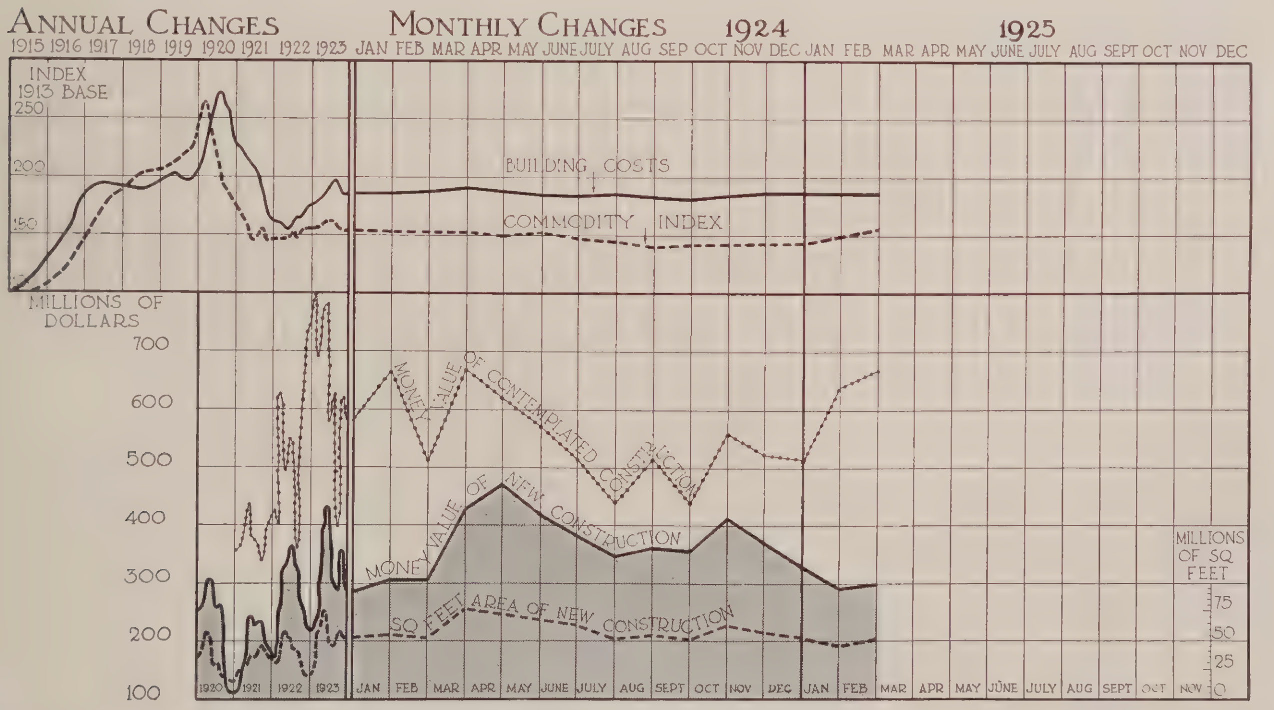
The Building Situation

A MONTHLY REVIEW OF COSTS AND CONDITIONS

DURING the closing months of 1924 some doubt was expressed in many quarters as to the continuation of a large volume of building construction during the year 1925. This doubt was probably somewhat strengthened by the fact that activity had slowed up considerably in the offices of many architects,—a condition which we believe to have been caused by a seasonal falling off of construction activity rather than by any great decrease of interest on the part of prospective investors.

The Annual Survey and Forecast of The Architectural Forum, as presented in the January and February numbers, indicated that activity during 1925 would closely approximate the record-breaking building volume of 1924. For the first two months of 1925, as indicated by reports of actual contracts let and plans filed (F. W. Dodge Corporation's figures), it is evident that the January and February building totals showed only a decline of one half of 1 per cent from the totals of the first two months of last year. Naturally, and as predicted by The Forum, there has been a considerable shifting of building activity, both in localities and in types of buildings. There has been considerably less activity in the metropolitan area of New York, and a slight decrease in the Northwest, balanced by a slight increase in the central West, while the New England, Pittsburgh and Southeastern districts have shown substantial increases in activity. It is also interesting to note that the total of contemplated new work reported during February of this year represents an increase of 4 per cent over the amount reported in January, and 32 per cent over February of last year.

This prediction is also verified by the fact that since the first of the year the offices of many architects have become quite busy; throughout the profession there is a current of optimism, based on the definite expression of interest on the part of owners.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

TABLE I

SPECIFICATIONS

HORIZONTAL TUBULAR STATIONARY BOILERS, WITHOUT DOMES

Built on a Factor of Safety of Five

SHELL IN TWO COURSES. (BOILERS 20 FEET LONG IN THREE COURSES)

A. S. M. E. CODE

BOILERS FOR 100 POUNDS WORKING PRESSURE. LONGITUDINAL SEAM BUTT-JOINT, INSIDE AND OUTSIDE STRAP, DOUBLE RIVETED

Horse Power as rated	**25**	**40**	**50**	**60**	**80**	**100**	**125**	**150**	**180**	**200**	**225**	**250**
Diameter of Boiler in inches by length of Tubes used in feet	**36 x 12**	**44 x 14**	**48 x 16**	**54 x 14**	**60 x 16**	**66 x 16**	**72 x 16**	**72 x 18**	**78 x 18**	**78 x 20**	**84 x 18**	**84 x 20**
Number of Tubes	28	36	28	36	44	54	70	70	88	88	108	108
Diameter of Tubes, in inches	3	3	4	4	4	4	4	4	4	4	4	4
Square Feet of Heating Surface, about	312	462	555	613	839	1013	1280	1436	1774	1964	2144	2376
Length of Grates, in inches	48	54	54	54	54	54	54	60	60	66	60	66
Thickness of Shell, "	1/4	5/16	5/16	5/16	3/8	3/8	13/32	13/32	1/2	1/2	1/2	1/2
Thickness of Heads, "	3/8	7/16	7/16	7/16	1/2	1/2	1/2	1/2	9/16	9/16	5/8	5/8
Diameter of Smoke Stack, "	16	22	24	26	28	30	34	34	38	38	42	42
Length of Smoke Stack, in feet	40	50	60	50	60	60	60	60	60	70	80	80

SHIPPING WEIGHTS. (Approximate)

	25	40	50	60	80	100	125	150	180	200	225	250
Weight of Bare Boiler, pounds	3500	5400	7300	7800	11100	12700	15500	17200	21600	23600	24800	27100
" Front as Specified, "	1500	2000	2200	2600	2900	3300	3600	3600	4200	4200	4800	4800
" Grates, "	600	800	900	1000	1100	1200	1300	1500	1600	1800	1700	2000
" Other Castings, "	400	500	600	600	800	900	1000	1000	1000	1100	1100	1100
" Trimmings, "	100	150	150	150	150	150	200	200	200	200	250	250
" Stack and Guys, "	600	900	1200	1100	1400	1900	2100	2100	3200	3700	5300	5300
Total Weight Complete, pounds	6700	9750	12350	13250	17450	20150	23700	25600	31800	34600	37950	40550

BOILERS FOR 125 POUNDS WORKING PRESSURE. LONGITUDINAL SEAM BUTT-JOINT, INSIDE AND OUTSIDE STRAP, TRIPLE RIVETED, 78 AND 84 INCH BOILERS QUADRUPLE RIVETED

Horse Power as rated	**45**	**50**	**60**	**80**	**100**	**125**	**150**	**180**	**200**	**225**	**250**
Diameter of Boiler in inches, by length of Tubes used in feet	**48 x 14**	**48 x 16**	**54 x 14**	**60 x 16**	**66 x 16**	**72 x 16**	**72 x 18**	**78 x 18**	**78 x 20**	**84 x 18**	**84 x 20**
Number of Tubes, 4 inches in diameter	28	28	36	44	54	70	70	88	88	108	108
Length of Grates, in inches	54	54	54	54	54	54	60	60	66	60	66
Thickness of Shell, "	11/32	11/32	3/8	13/32	7/16	1/2	1/2	1/2	1/2	17/32	17/32
Thickness of Heads, "	7/16	7/16	7/16	1/2	1/2	1/2	1/2	9/16	9/16	5/8	5/8
Diameter of Smoke Stack, "	24	24	26	28	30	34	34	38	38	42	42
Length of Smoke Stack, in feet	50	60	50	60	60	60	60	60	70	80	80

SHIPPING WEIGHTS. (Approximate)

	45	50	60	80	100	125	150	180	200	225	250
Weight of Bare Boiler, pounds	7100	8000	8700	11900	13900	17300	19200	22400	24500	26200	28700
" Front as Specified, "	2200	2200	2600	2900	3300	3600	3600	4200	4200	4800	4800
" Grates, "	900	900	1000	1100	1200	1300	1500	1600	1800	1700	2000
" Other Castings, "	600	600	600	800	900	1000	1000	1000	1100	1100	1100
" Trimmings, "	150	150	150	150	150	200	200	200	200	250	250
" Stack and Guys, "	1000	1200	1100	1400	1900	2100	2100	3200	3700	5300	5300
Total Weight Complete, pounds	11950	13050	14150	18250	21350	25500	27600	32600	35500	39350	42150

BOILERS FOR 150 POUNDS WORKING PRESSURE. LONGITUDINAL SEAM BUTT-JOINT, INSIDE AND OUTSIDE STRAP, QUADRUPLE RIVETED

Horse Power as rated	**45**	**50**	**60**	**80**	**100**	**125**	**150**	**180**	**200**	**225**	**250**
Diameter of Boiler in inches, by length of Tubes used in feet	**48 x 14**	**48 x 16**	**54 x 14**	**60 x 16**	**66 x 16**	**72 x 16**	**72 x 18**	**78 x 18**	**78 x 20**	**84 x 18**	**84 x 20**
Number of Tubes, 4 inches in diameter	28	28	36	44	54	70	70	88	88	108	108
Length of Grates, in inches	54	54	54	54	54	54	60	60	66	60	66
Thickness of Shell, "	3/8	3/8	13/32	7/16	1/2	17/32	17/32	19/32	19/32	5/8	5/8
Thickness of Heads, "	7/16	7/16	7/16	1/2	1/2	1/2	1/2	9/16	9/16	5/8	5/8
Diameter of Smoke Stack, "	24	24	26	28	30	34	34	38	38	42	42
Length of Smoke Stack, in feet	50	60	50	60	60	60	60	60	70	80	80

Guys of 70′ stacks cover one set only.

SHIPPING WEIGHTS. (Approximate)

	45	50	60	80	100	125	150	180	200	225	250
Weight of Bare Boiler, pounds	7400	8300	9200	12600	15200	18400	20300	24600	26800	28500	31400
" Front as Specified, "	2200	2200	2600	2900	3300	3600	3600	4200	4200	4800	4800
" Grates, "	900	900	1000	1100	1200	1300	1500	1600	1800	1700	2000
" Other Castings, "	600	600	600	800	900	1000	1000	1000	1100	1100	1100
" Trimmings, "	150	150	150	150	150	200	200	200	200	250	250
" Stack and Guys, "	1000	1200	1100	1400	1900	2100	2100	3200	3700	5300	5300
Total Weight complete, pounds	12250	13350	14650	18950	22650	26600	28700	34800	37800	41650	44850

Specifications to accompany article on Heating and Power Plants beginning on opposite page.

ENGINEERING DEPARTMENT

Power and Heating Plants

THE GENERATING PLANT; BOILERS

By J. J. COSGROVE

EDITOR'S NOTE—This is the first of a series of brief informative treatises covering the various important phases of heating and power plants with installation requirements. Mr. Cosgrove, who is well known as a contributor to the editorial columns of leading technical journals, has here contributed knowledge gained during 30 years of practical experience in this field. The discussion of boilers will be followed by articles on the various other topics connected with heating plants.

IN studying the subject of power and heating plants, brief consideration will be given first to boiler room dimensions. The standard heights for ceilings of boiler rooms in government buildings, adopted by the Supervising Architect's office, Washington, are given below. The horse powers referred to are the manufacturers' rated horse powers, based on the exposed heating surface, 10 square feet of surface being considered the equal of 1 horse power.

For boilers of 100 to 150 h.p. 14′-6″ ceilings
For " of 150 to 175 " " 15′-0″ "
For " of 175 to 200 " " 15′-6″ "

The present tendency in boiler practice is toward higher settings on account of the increasing rates of combustion, which require more space in the furnace and combustion chambers for the burning of the volatile gases distilled from the coal. Higher settings are required also for oil-burning plants, stoker-fired boilers, and pulverized coal furnaces, so for present practice ceilings of from 25 to 28 feet will be found more satisfactory, as these heights allow space above the boilers for the piping. Boiler houses are generally designed with plenty of headroom, space being provided for the coal bunkers.

The floor space required in a boiler room will depend largely upon the type of boilers installed. For instance, a 250 h.p. return-tubular boiler, hand-fired, occupies a floor area approximately 9 feet by 26 feet, or 234 square feet. An average sized hand-fired, water-tube boiler of the same capacity, requires a floor area 9 feet by 19 feet, 9 inches, which equals an area of only 178 square feet. There are other water-tube boilers which occupy still less floor space. This is important to know, since often a building outgrows its boiler capacity, and there is but little space available in the boiler room for an additional boiler. There is then a choice of several means of increasing the capacity without building another boiler room or enlarging the old room at the expense of rentable space. If the boilers are hand-fired, forced draft can be introduced, using the existing boilers. If that does not produce sufficient horse power, mechanical stokers or oil-burning apparatus can be installed. If the boilers are of the return-tubular type, they can be replaced by water-tube boilers, which will give greater horse power, space for space. Even when water-tube boilers, forced beyond their rated capacities by means of forced draft and mechanical stokers, fall short of requirements, other types of water-tube boilers which occupy much less floor area per rated horse power can be set in their places, thereby adding to the capacity about 50 per cent. Take for example the maximum output in the space occupied by a 250 h.p. hand-fired, return-tubular boiler. By selecting compact water-tube boilers of equal floor area, and equipping them with mechanical stokers and forced draft, pulverized coal burners or oil-burning appa-

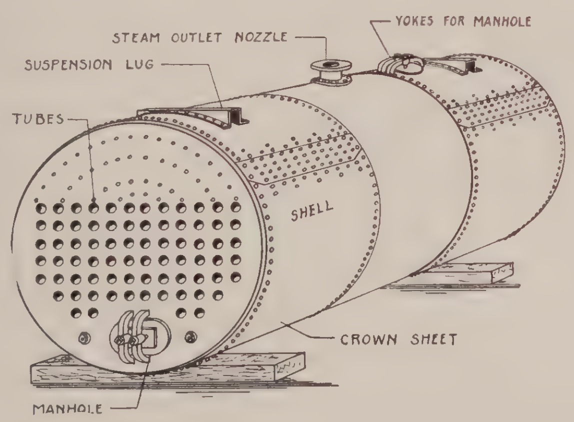


Fig. 1. Horizontal Return-Tubular Boiler

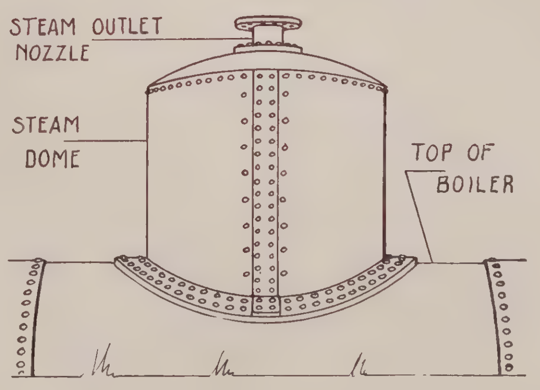


Fig. 2. Steam Dome for Return-Tubular Boiler

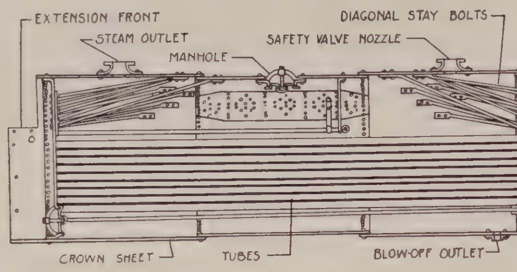


Fig. 3. Interior of Return-Tubular Boiler with Diagonal Stay Bolts

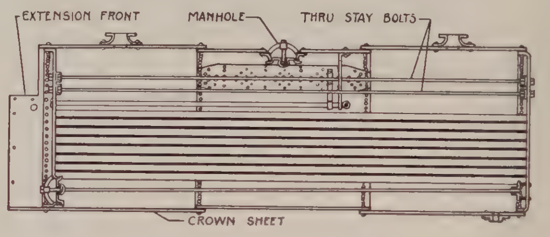


Fig. 4. Interior of Return-Tubular Boiler with Through Stay Bolts

ratus, the floor space can be made to yield over 1,000 boiler horse power, which is often advantageous.

In a city building the boiler room is generally located in the basement or sub-basement. This is not absolutely necessary, but it is desirable, since it permits of gravity circulation from all parts of the structure. For this reason, too, power houses for groups of buildings are often located at the lowest part of the institution grounds or the college campus.

Horizontal Return-tubular Boiler. There are several types and many varieties of boilers used for power and heating purposes. The several types are the fire-tube boiler, the water-tube boiler, the internally-fired, locomotive type, and the cast iron house heating boiler. A fire-tube boiler is illustrated in Fig. 1. It is called also a return-tubular boiler, and a horizontal-tubular boiler. It is simply a huge cylindrical tank, which when in service is partly filled with water. Heat is applied to the boiler at the bottom, but in order to abstract as much of the heat of the burning fuel as possible, tubes pass through the boiler from end to end, and the hot flames and gases passing through these tubes transmit their heat to the water within. They are fire-tube boilers, because fire and not water is inside of the tubes. They are return-tubular boilers, because the smoke, flames and gases, after passing from the furnace through the combustion chamber to the rear of the boiler, return again to the front through the tubes to the breeching. They are called horizontal-tubular boilers to distinguish them from vertical-tube boilers. This type of boiler is much used.

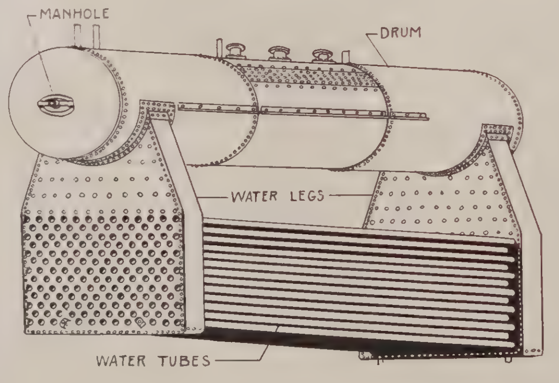


Fig. 5. Water-Tube Boiler

The smaller sizes of boilers, that is boilers of less than 54 inches in diameter, have steam domes as shown in Fig. 2. Boilers of 54 inches and more in diameter do not need domes, as the disengaging surface for the liberation of steam is sufficient without. Stock sizes of return-tubular boilers range all the way from those 3 feet in diameter and 12 feet long to 8 feet in diameter and 20 feet long. They are usually made according to the A. S. M. E. Code, that is, in accordance with the Boiler Code of the American Society of Mechanical Engineers. Specifications for horizontal stationary boilers without domes can be found in Table 1 on page 240.

The average age of lap-seam horizontal return-tubular boilers over 36 inches in diameter, carrying over 50 pounds pressure but less than 100 pounds, is approximately 20 to 25 years; when carrying over 100 pounds pressure, from 15 to 18 years. With good care, however, and with freedom from corrosive feed waters, they will last much longer. The interior of a horizontal-tubular boiler is illustrated in Fig. 3. The flat surfaces of the heads or tube sheets above the tubes are braced with diagonal stay bolts to prevent bulging from the pressure when the boilers are in use. The tubes strengthen the rest of the surface of the heads. A similar boiler with through stay bolts or bracing rods is shown in Fig. 4. The shells of both these boilers extend beyond the from tube sheets, so these are known as extension-front boilers. An unmounted water-tube boiler is illustrated in Fig. 5. Whereas in the return-tubular boiler the water surrounds the tubes, and the flames and gases are within, in the water-tube boiler the water is within the tubes and the flames and hot gases play on the tubes from outside. The advantage is thus on the side of the water-tube boilers, for the heating surface of a tube is the surface in contact with the hot gases and flames. That is because water, having a great capacity for heat, will absorb and carry off the heat as fast as it can be applied to the tubes. It follows that the sizes of

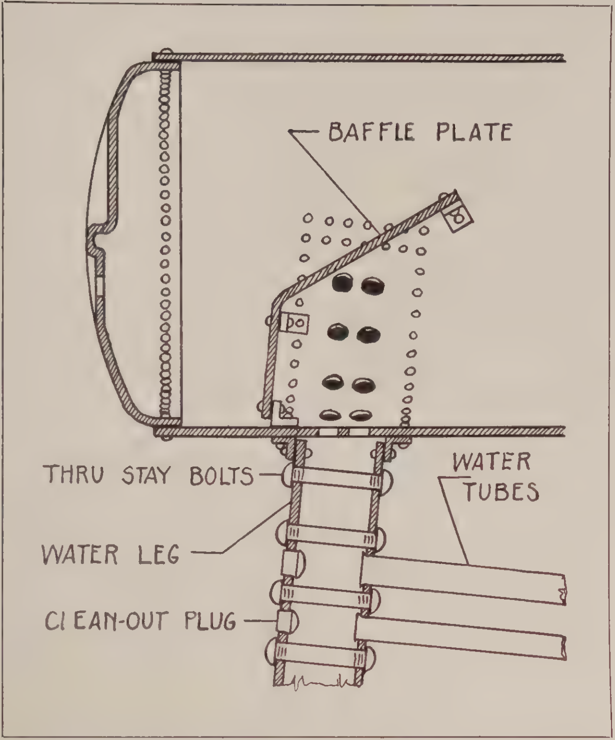


Fig. 6. Detail of Water Leg in Water-Tube Boiler

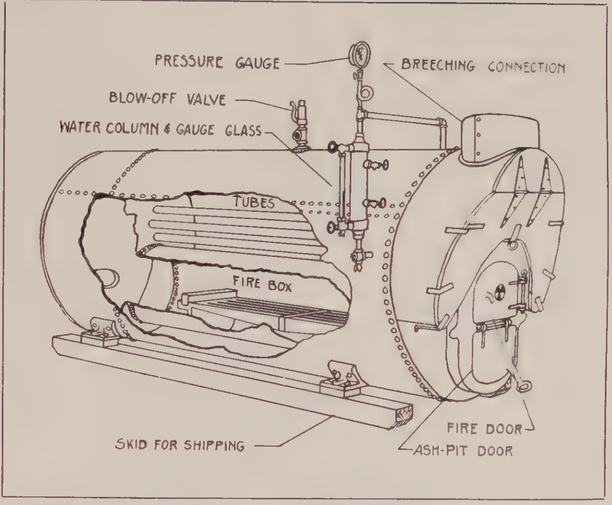


Fig. 7. Scotch Marine Boiler

the tubes being equal, the water-tube boiler would have the greater surface per lineal foot of the tube by just so much as the outer area of the tube exceeds the inner area, and these areas, of course, vary.

The openings in the face sheets of the water legs are opposite the tubes, and are solely for cleanout purposes, being plugged or capped when the boilers are in service. This is illustrated in Fig. 6, which likewise shows the way the flat surfaces of the water legs are braced with stay bolts spaced uniformly throughout the sheets. Water legs are characteristic of all water-tube boilers. In service, particularly where the water is hard, the interiors of the water tubes become incrusted with lime, and the lime is cut, broken or turbined out through the cleanout openings. Stock sizes of water-tube boilers range from those of 150 to 500 horse power, and for pressures of from 150 to 200 pounds per square inch. Boilers of larger sizes or for greater pressures are made on special order when needed.

There are certain requirements for a good power steam boiler which may be briefly given here: Strength to withstand any reasonable pressure or stress. Freedom from strains, due to unequal expansion, and freedom from joints exposed to the direct action of fire. A combustion chamber of sufficient size, and so arranged that the combustion of the gases started in the furnace may be completed

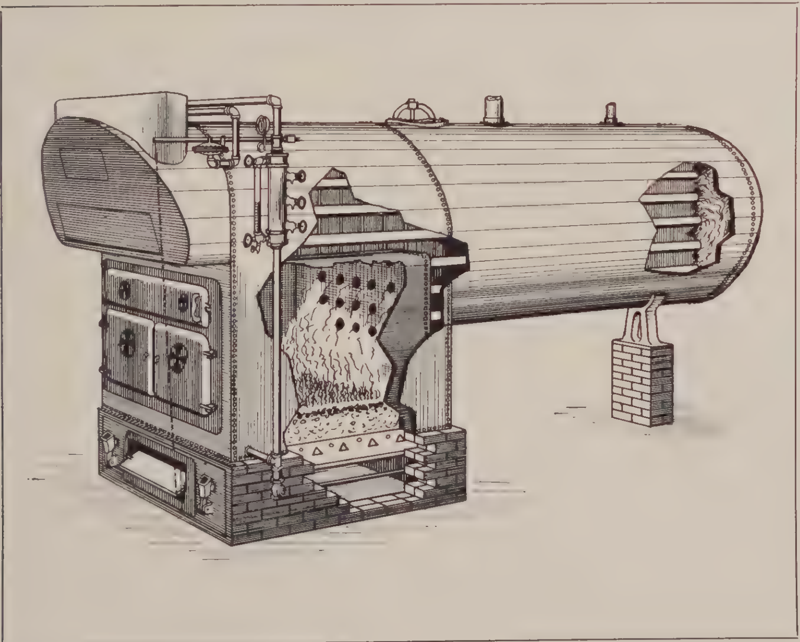


Fig. 8. Locomotive Type of Boiler

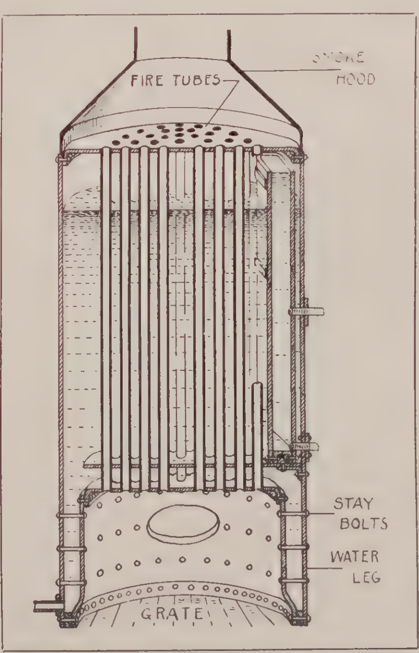


Fig. 9. Vertical Fire-Tube Boiler

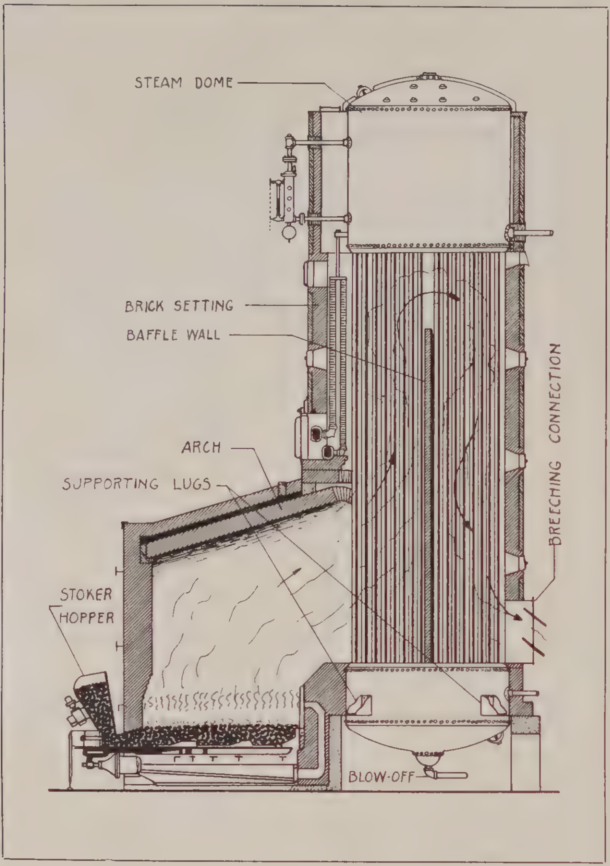


Fig. 10. Vertical Water-Tube Boiler

before the gases escape up the chimney. A steam and water capacity sufficient to prevent any fluctuation in steam pressure or water level. A water surface of sufficient area for the disengagement of the steam from the water, and of sufficient extent to prevent foaming. A constant and thorough circulation of water throughout the boiler to maintain all parts at approximately the same temperature.

Scotch Marine Boiler. A marine type Scotch boiler, or a Scotch marine boiler, is illustrated in Fig. 7. This is an internally-fired boiler, the furnace being enclosed within the boiler shell. From the furnace the flames and hot gases pass to the combustion chamber at the rear, then return to the front of the boiler through the tubes to the breeching. The enclosed furnace makes this type of boiler particularly free from draft leaks, and all heating surface is of the best; therefore it is a very efficient boiler. It can be set in brick, covered with sheet metal, or used exposed as shown. The Scotch marine is a type of boiler used extensively in marine work. A locomotive or firebox type of boiler is illustrated in Fig. 8. In this type the furnace is located below the boiler and is wholly or partly surrounded by water legs, thereby deriving the benefit of the direct heat of the fire. The smoke and hot gases pass through tubes to a chamber at the rear of the boiler, then return through another set of tubes to the front of the shell, where the smoke outlet is located. This type of boiler is used for low pressure work and heating and similar uses.

Vertical Fire-tube Boiler. A vertical fire-tube boiler is shown in section in Fig. 9. This type of boiler is used for power rather than for heating. It is a favorite portable type for hoisting engines.

A vertical water-tube boiler is illustrated in Fig. 10. It is supported by lugs at the bottom so the top is free to expand with the heat. Like all the water-tube boilers, it is used primarily for power purposes. Water-tube boilers are sometimes enclosed with steel plates instead of brick walls, since that saves space. Again, they are encased with steel plates outside of the brick walls to cut down the loss due to leaking of air into the furnace and combustion chambers through the brick walls of the setting. It is estimated that the losses due to radiation and infiltration of air into the boiler setting will average from 2 to 10 per cent, depending upon the condition of the setting and size of the boiler. Steel plates backed by asbestos mill board or magnesia block and asbestos mill board will reduce the loss from radiation approximately 2 per cent over that of a good brick setting without the steel casing, and will prevent much of the loss due to the infiltration of air which may amount to another 5 per cent. Steel plate or steel plate backed by asbestos mill board is not so effective as magnesia block and asbestos mill board in preventing loss due to radiation, although it is equally effective in preventing infiltration of air. A cast iron sectional boiler is shown in Fig. 11. This is a low pressure heating boiler for working pressures not exceeding 10 pounds per square inch. It is never used for power, and is not nearly so efficient or economical as fire-tube or water-tube boilers. It is used mainly for house heating, and is made in sizes much smaller than the stock sizes of tubular boilers generally carried.

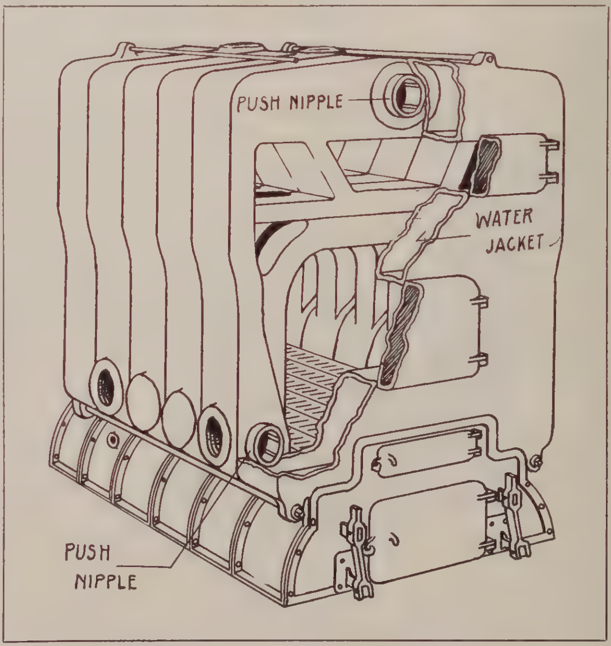


Fig. 11. Cast Iron Sectional Boiler

House of Dudley N. Hartt, Esq., Chestnut Hill, Mass.

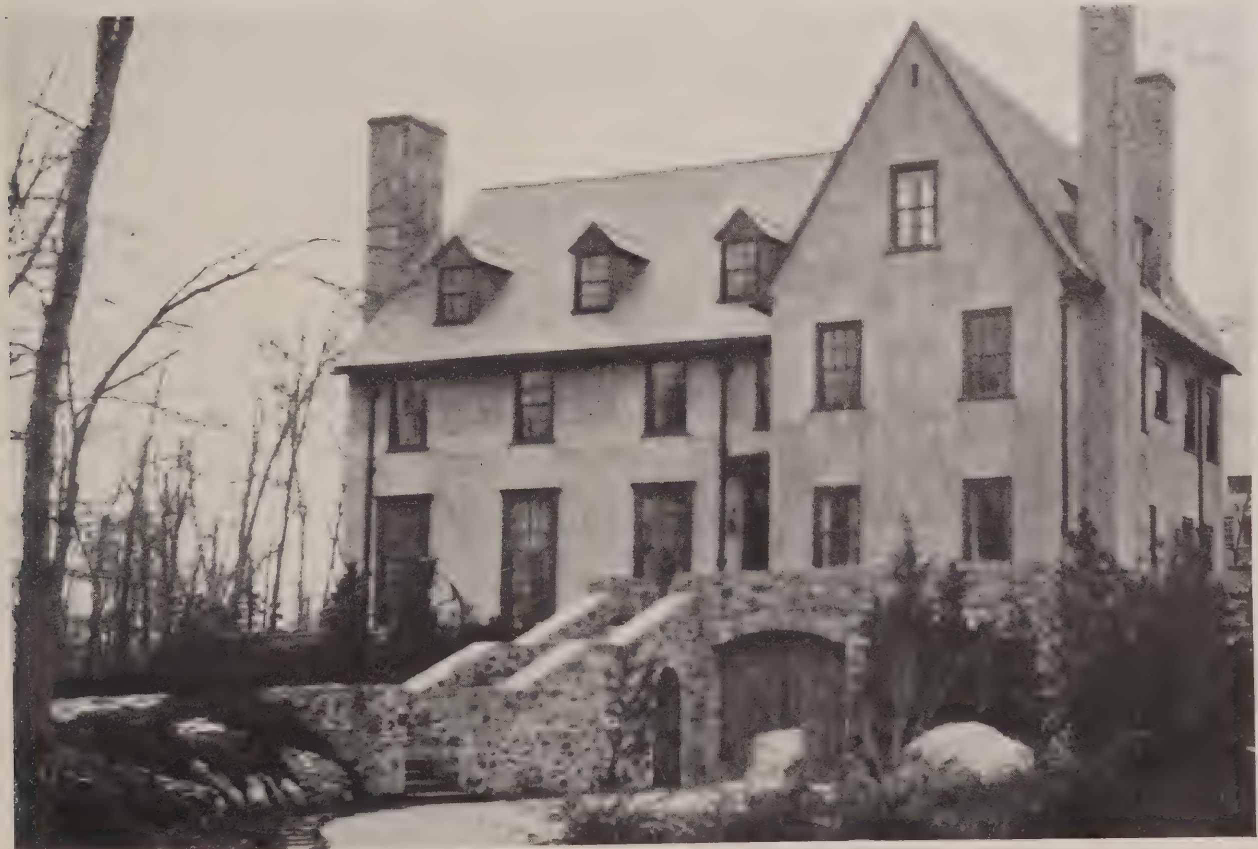
RICHARDSON, BAROTT & RICHARDSON, ARCHITECTS

By CHESTER L. CHURCHILL

THE small house presents to the architect a distinct problem, which requires for its successful solution as much of his time and skill as that of the large house. This is because a majority of the requirements are the same, while there are others which are different and more difficult to secure. A suitable entrance, effective grouping of the master living quarters, isolated but closely related service quarters both inside and outside the house, distinctiveness of exterior design, which must be appropriate to the size and character of the building, and proper location on the ground available, are requirements common to both types of houses. However, in the case of the small house, the financial aspect of the architectural problem and the amount of area which it is possible to use in developing the plan are factors of vital importance. Happily, these considerations are not likely to be quite so pressing in larger work, and this in some measure explains why our larger country house architecture is superior generally to that of the smaller buildings.

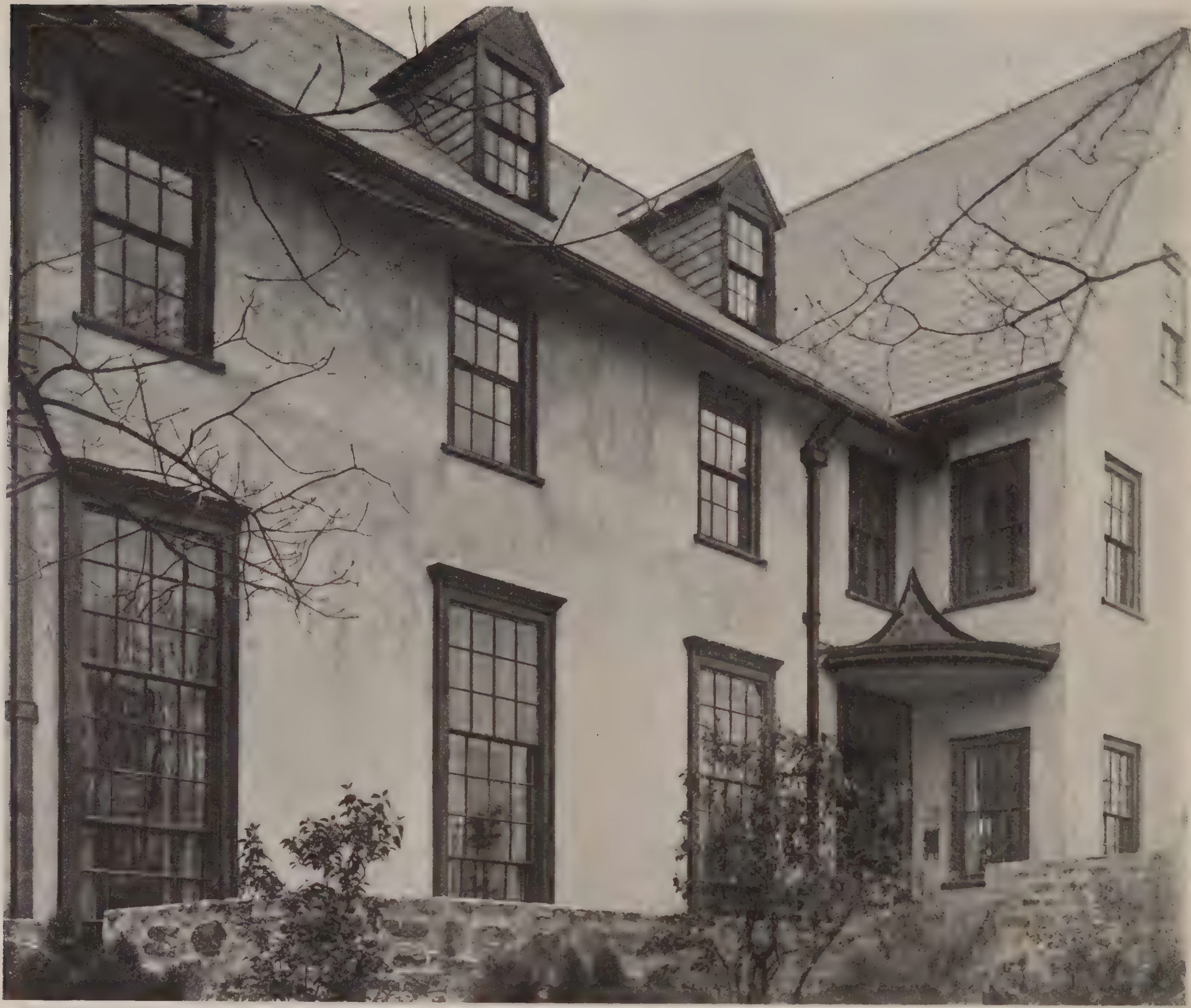
The problem of properly locating the house is of the first importance in small work, where the land is usually restricted in area. In the Dudley N. Hartt house at Chestnut Hill, Mass., the site was of fair size and made up largely of ledges, with a sort of rocky knoll near the center, the land dropping rather sharply to the street and sloping in ledge formation on the other sides. Natural growth peculiar to this soil was quite plentiful, although some of the best trees had been nearly ruined by storms. The solution was to place the house on the ledge, on the part dominating the lot, and to relate it to the character of the site by building the lower part of the house of the existing stone, and by emphasizing in the mass of the structure the lofty character suggested by the topography of the site. The unevenness of the ground allowed further relation of the house to the topography by the use of stone terraces, steps and walls, which were very important in completing the design and uniting the house pictorially to the land. The problem of blasting influenced the decision of placing the garage under the house, thus forming a forecourt from which the main part of the house and also the service quarters are entered. A wall was built, continuing the line of terraces to screen the service yard and service entrance from the forecourt and the street, adding much to the effet.

Of no less importance than the development of a site for a small house is the practical working out of the floor plans which, when well done, make for the success of the house. Every inch of area must

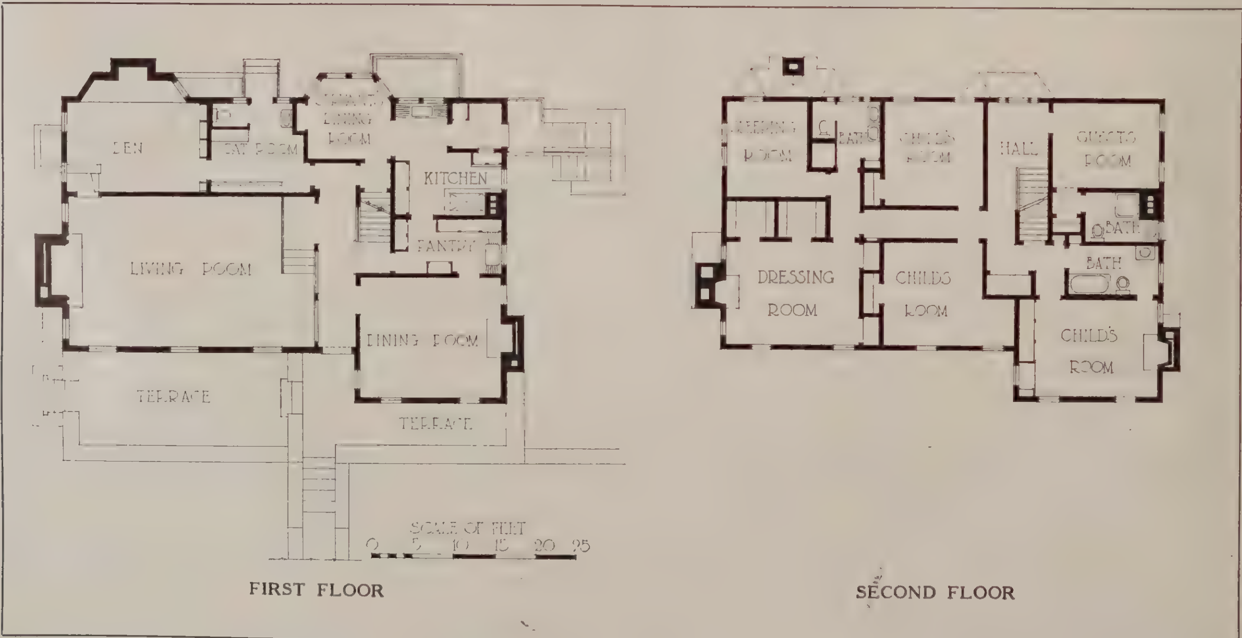


Photos. Maynard Workshop

Entrance Forecourt, Showing Garage Under Terrace



ENTRANCE DOOR AND LIVING ROOM WINDOWS ON TERRACE LEVEL

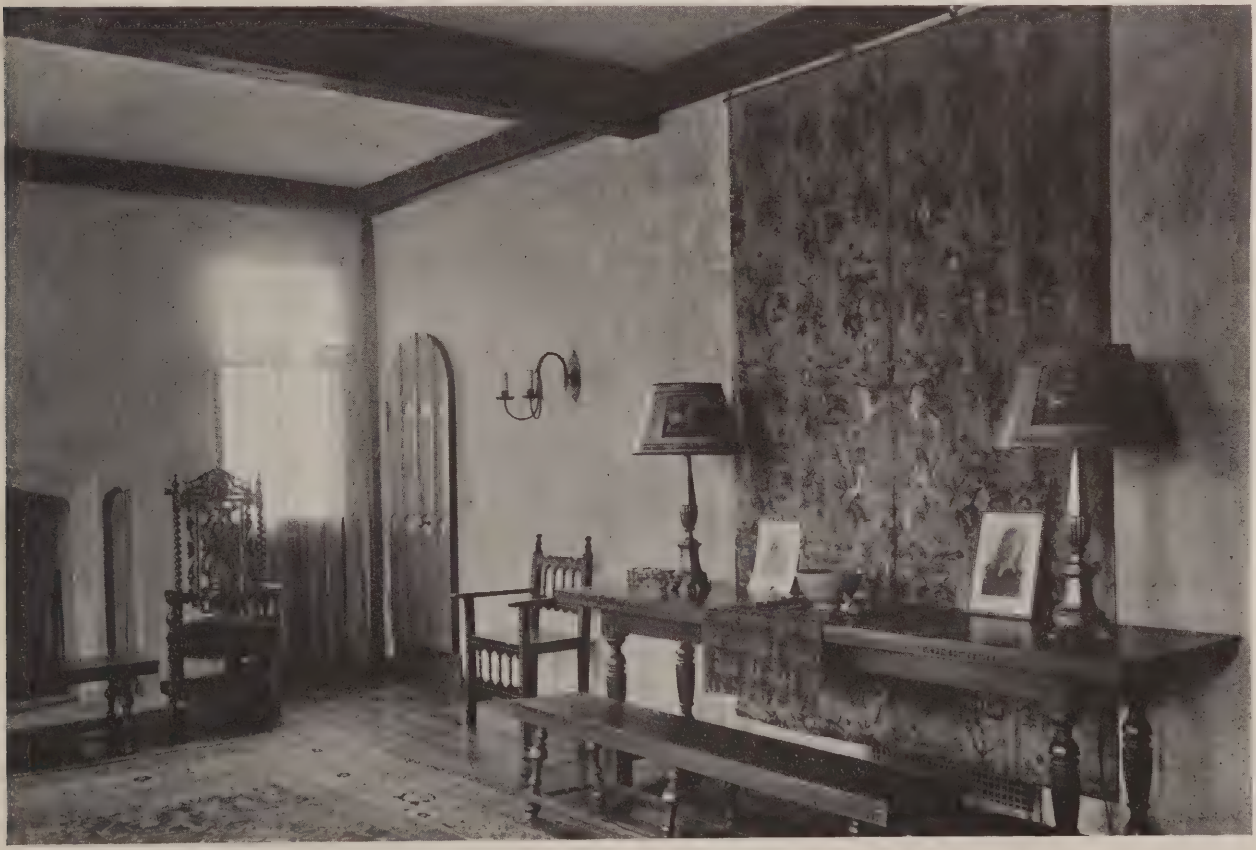


HOUSE OF DUDLEY N. HARTT, ESQ., CHESTNUT HILL, MASS.
RICHARDSON, BAROTT & RICHARDSON, ARCHITECTS

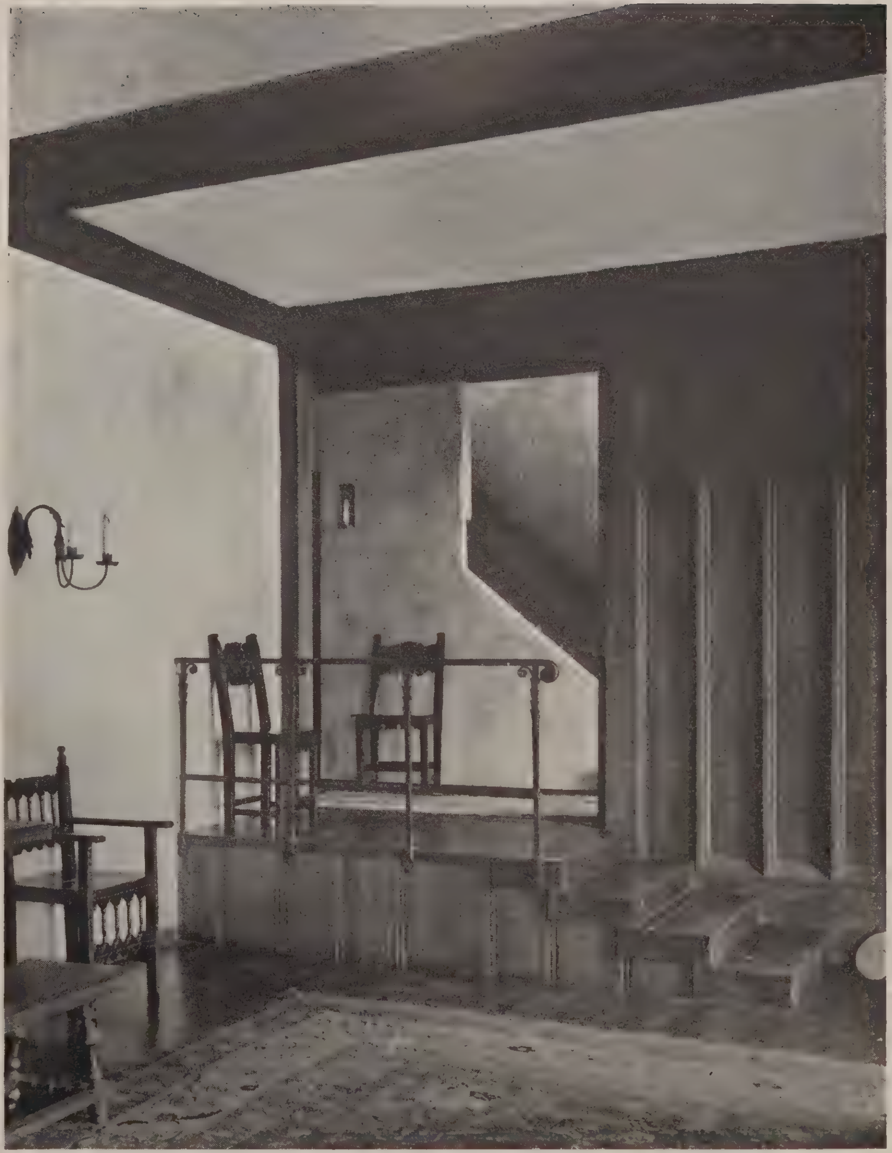
be utilized and carefully considered as to the relation between the design of the house and the treatment of the grounds. Compactness of layout and good planning must have equal consideration, which combination is the salient feature of the Hartt house. At the owner's request, the plan centers around the stairway. To increase the apparent size of the hallway, which because of the restricted area could not be large, a heavy wood screen instead of a wall was placed between the hall and living room, at one side of which, and open part of the way, rises the staircase. The second floor presents an arrangement wholly in keeping with the compactness required, and includes a guests' bedroom with closet and private bathroom; three large bedrooms for children, with closets and a bathroom; an owner's suite of hall, dressing room, closets, sleeping room and bath; and linen and housemaids' closets, all of which are grouped about the hallway on this floor, the length between outside walls being only 52 feet. Fireplaces add to the comfort of two of the rooms.

In the first floor plan, the aim of which was to achieve the same result, the hallway, from which the dining room opens, and from which the stairway to the second floor ascends, is given an appearance of spaciousness, first through the employment of the wood screen already mentioned and also through the large opening into the living room which opens onto a platform from which steps descend to the living room floor level. Beyond this opening a door opens into the coat room, beyond which room, with its toilet and entrance door into the garden, is the "den," also communicating with the living room by a few steps and a door. From the main part of the first floor there are three service doors,—one from the dining room to the pantry; one from the main stairway to the pantry; and one from the hall, which enters a lobby giving access to both the basement stairs and to the kitchen, performing the function of double doors placed between the main house and the service quarters, and allowing the basement to be entered from either main house or service quarters without going from one through the other. From the kitchen open the butler's pantry, the servants' dining room, and the rear hall with its store closet and refrigerator.

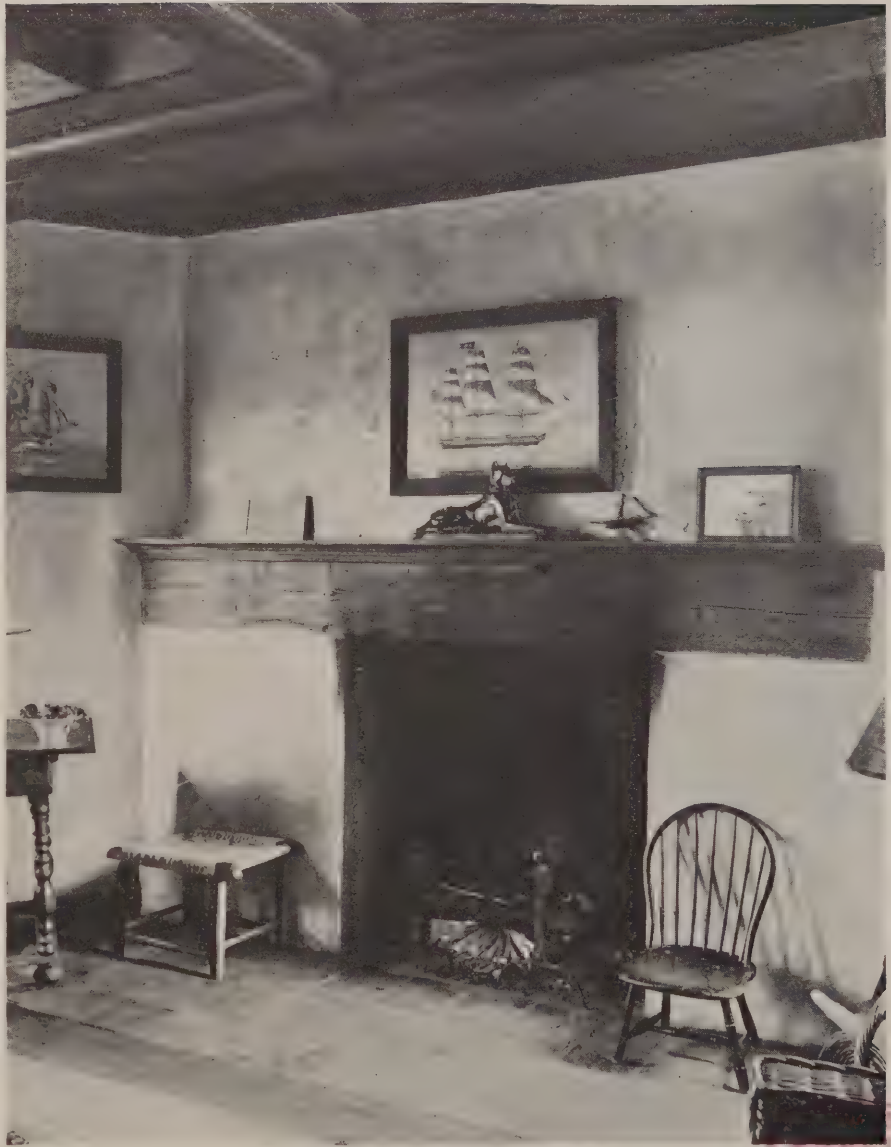
After the setting and plan of the house comes consideration of the design,—the relating of the house to the character and topography of the site, the exterior indication of the plan, the choosing of proper building materials, and technically handling them to achieve the most picturesque and individual results. With the type of site established here by nature, a style bordering on that of the French farmhouse was chosen for the design of the exterior of the house. Local stone, blasted from the site, was used for the terraces, walls, steps and foundations, above which is rough-finished stucco on tile. The trim is cypress and oak, stained brown, enframing the windows and doors and forming a fascia along their cornices. The oak trim of the entrance door is carved, and the roofs are covered with slates.



Rough Plaster and Exposed Ceiling Beams Are Used in the Living Room



STEPS FROM LIVING ROOM TO ENTRANCE HALL



FIREPLACE CORNER IN STUDY

HOUSE OF DUDLEY N. HARTT, ESQ., CHESTNUT HILL, MASS.
RICHARDSON, BAROTT & RICHARDSON, ARCHITECTS

The Smaller Civil Architecture of England

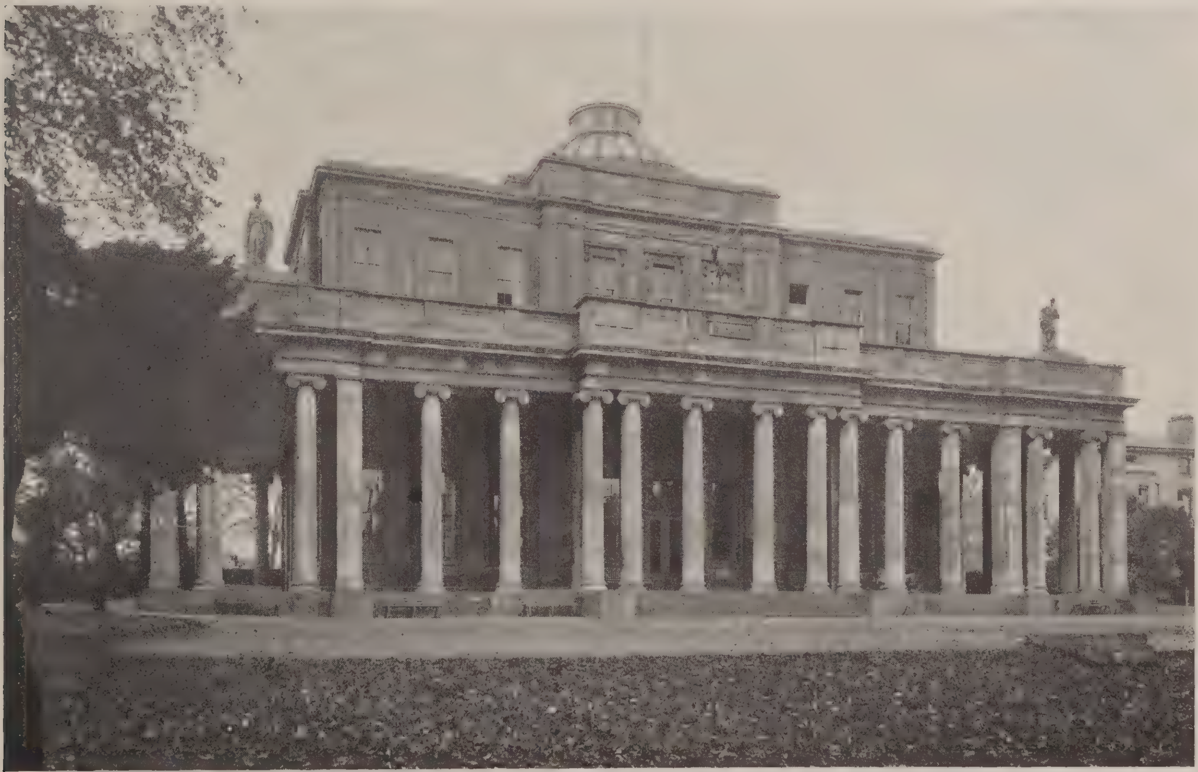
PART IV. THE PITTVILLE PUMP ROOM, CHELTENHAM, GLOUCESTERSHIRE

By ROGER WEARNE RAMSDELL AND HAROLD DONALDSON EBERLEIN

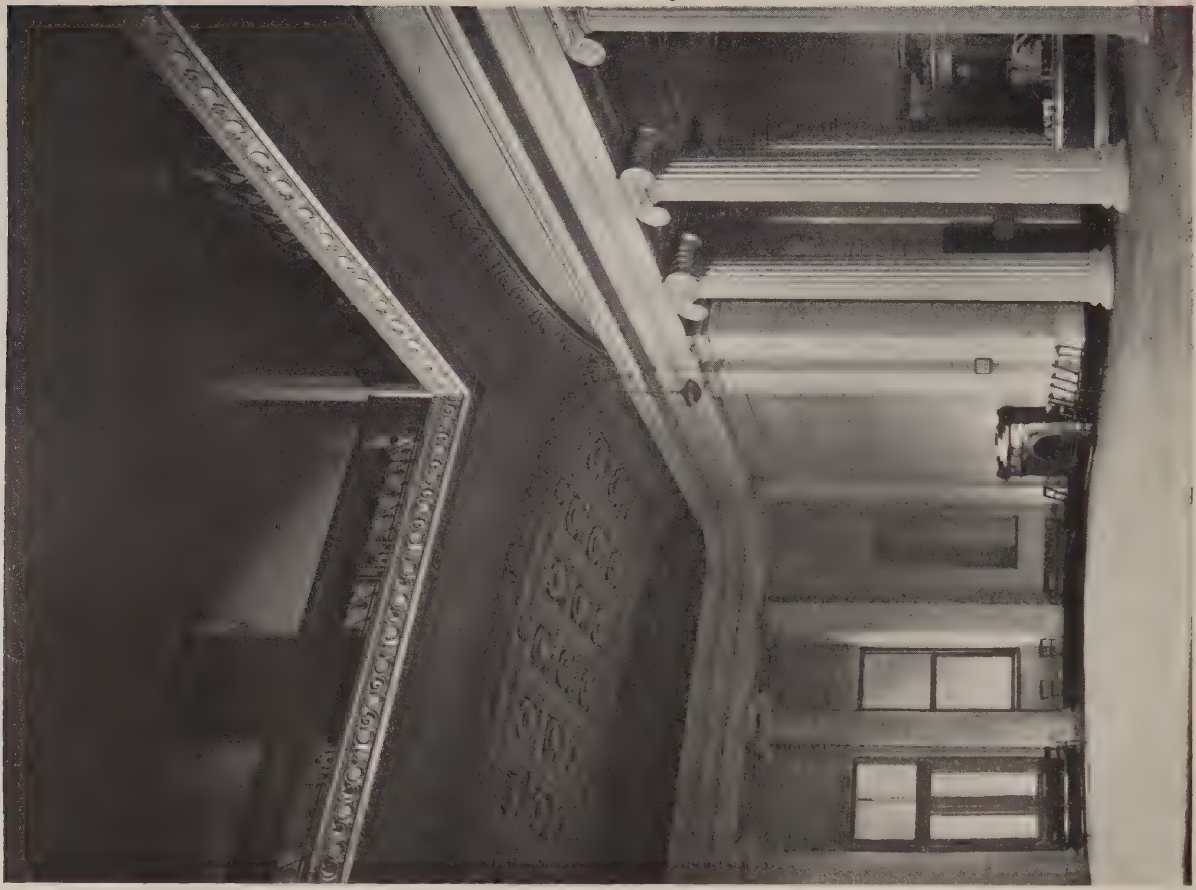
ON May 4, 1825, the cornerstone of the Pittville Pump Room, in the northern outskirts of Cheltenham, was laid with all the panoply of Masonic ritual in the presence of a large gathering of notabilities who had come thither in procession after a service and sermon in the parish church. Coins and diverse other articles were placed in the cavity of the stone, which was then closed with a silver plate whereon was a long inscription recording, among other facts, that the architect was John Forbes of Cheltenham. At the conclusion of the ceremonies there was enthusiastic cheering, and the band played "God Save the King." A decorous beginning, indeed, for a very decorous building! We further discover from the old records that "the building occupied five years in its erection. It was completed in 1830, and opened July 20, by a public breakfast, attended by the leading families of the county." Let the imagination picture the clothes worn by the belles and beaux of the day, the raiment of the dowagers and squires, gaily colored vehicles in which they arrived, the bright hued liveries of the coachmen and footmen, the serenity of well groomed rural surroundings, the urbanely plotted and planted park about the Pump Room, and you have a vivid picture of the occasion!

Though not couched in quite the terms we should now employ for an accurate architectural description, a contemporary account of the building, written for the general public, is so redolent of Regency atmosphere—George IV had been king in his own right only a few years when the writer described the projected building from the architect's drawings—that it would be a pity not to give it in part:

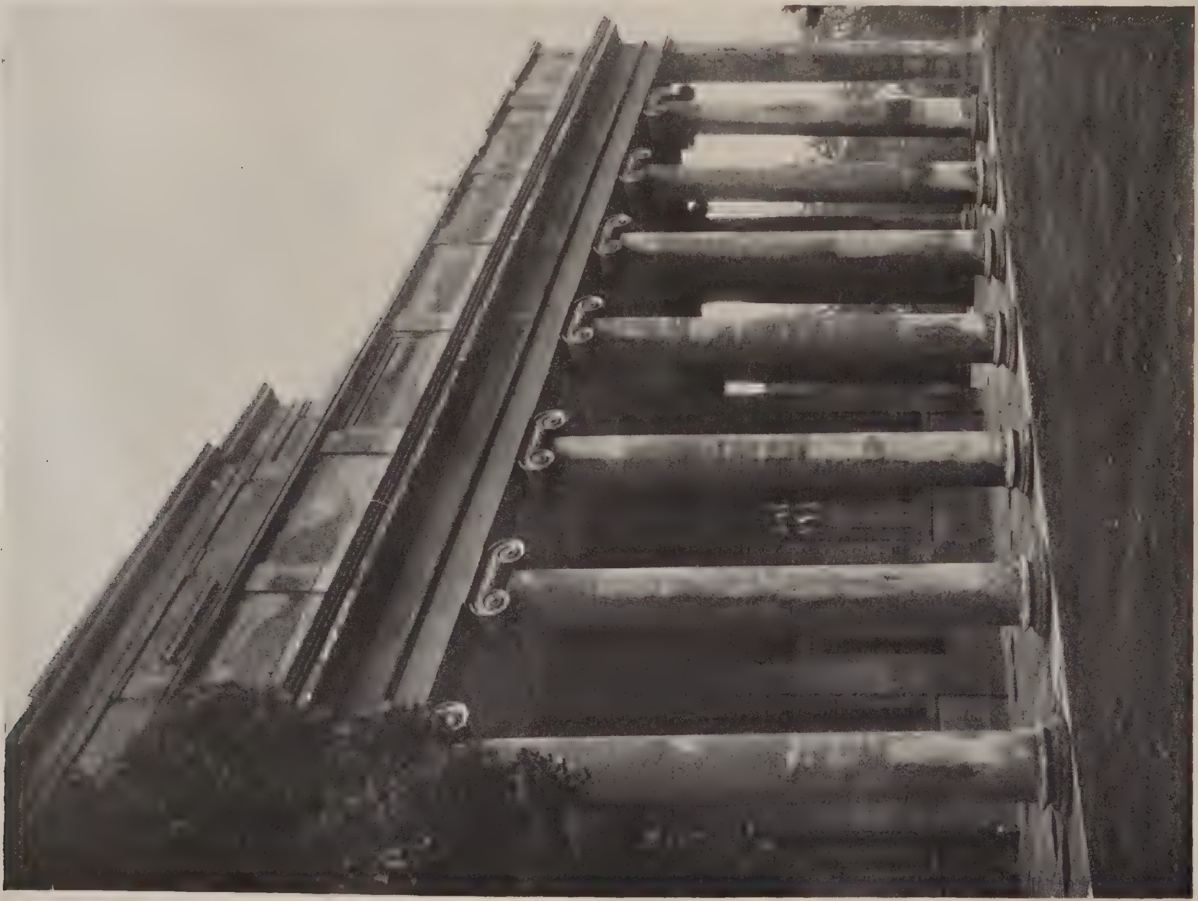
> Pittville Pump-room is of a style purely Grecian, varied and embellished by the taste and genius of the architect. The Ionic order has been selected for decoration; and the subject chosen for imitation is the temple on the Ilissus, at Athens. The body of the building, which is 90 feet in length, and 43 in breadth, is surrounded by a splendid colonnade of 20 feet wide, the roof supported by fluted columns of 22 feet in length, and with capitals richly ornamented. In the middle of this roof, and over the principal entrance, stands the figure of Hygeia; and the two wings ornamented with the statues of Aesculapius and Hippocrates, respectively, have a very fine effect. The main building bears an elegant superstructure of corresponding character and ornament, consisting of a room at each end, presenting externally three windows in each, the intermediate space being faced with ornaments and pilasters. Over the centre of the building appears an elegant dome, well raised to the height of 70 feet, around which and enclosed by neat iron work, is a gallery. . . . The staircase, leading to the upper room, and also to the gallery, ascends from a vestibule at the back of the building, the entrance to which is from the northwest end of the colonnade. The style and arrangement of this magnificent design differ from the exterior only as it surpasses it in variety of embellishment, and richness of decoration, so as, at least, to equal any expectation which a survey of its bold and splendid exterior may inspire. On each side of the principal entrance there are two columns and pilasters (separated by large windows of 11 feet in height) corresponding with four others on the opposite side of the room, the intercolumniations of which are open; behind these are three windows of richly stained glass, in front of which



South Front

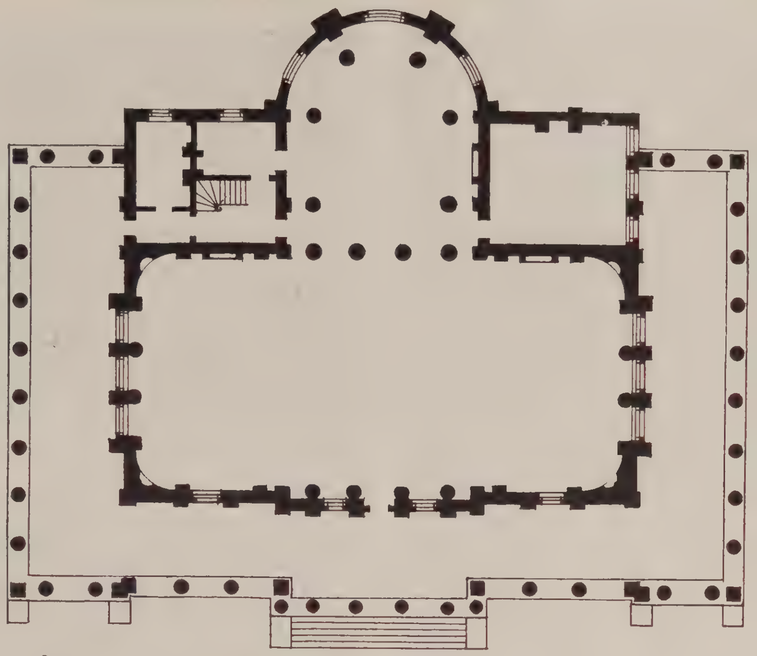


THE GREAT PUMP ROOM

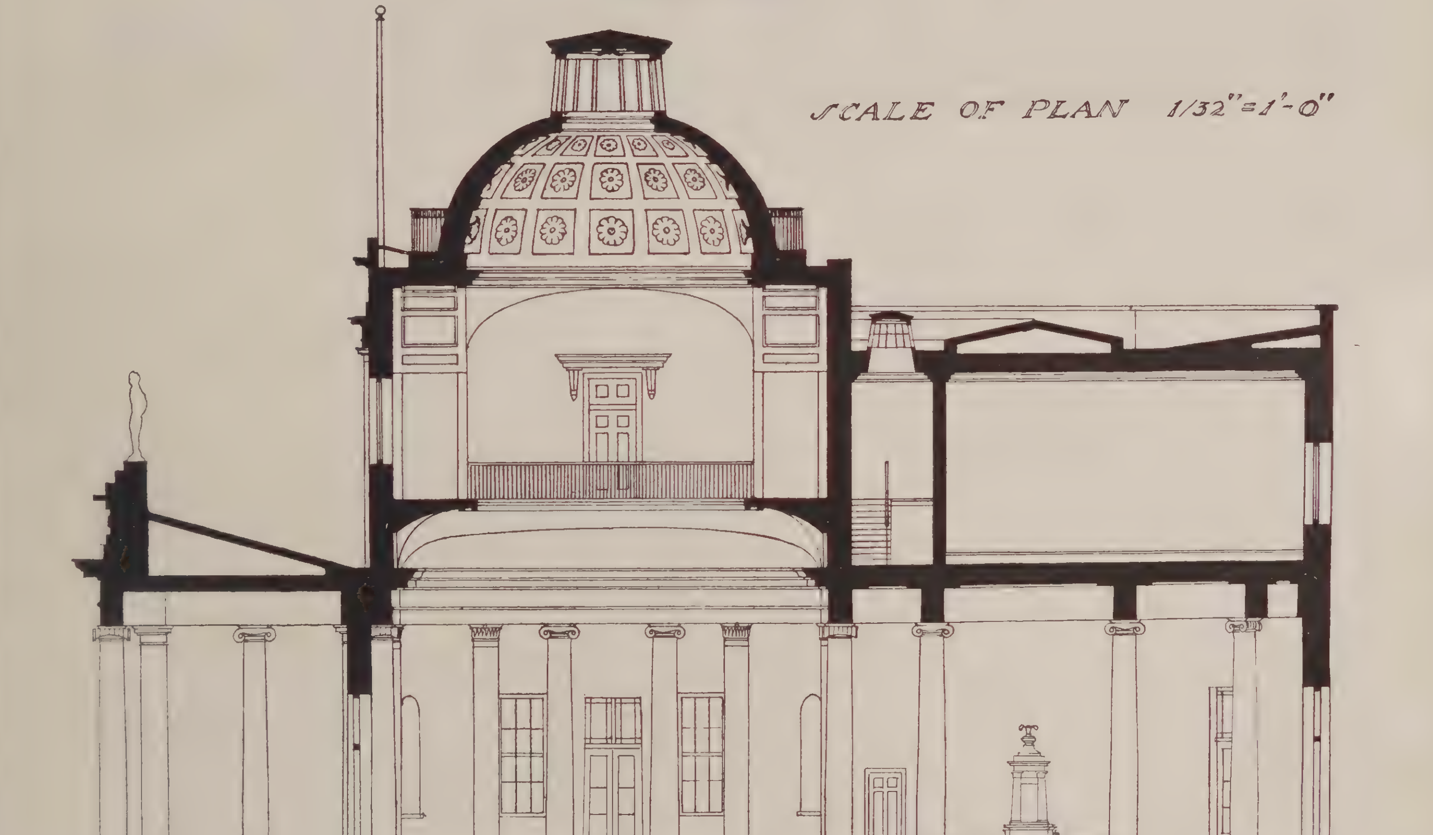


THE WEST PORTICO

PITTVILLE PUMP ROOM, CHELTENHAM, GLOUCESTERSHIRE



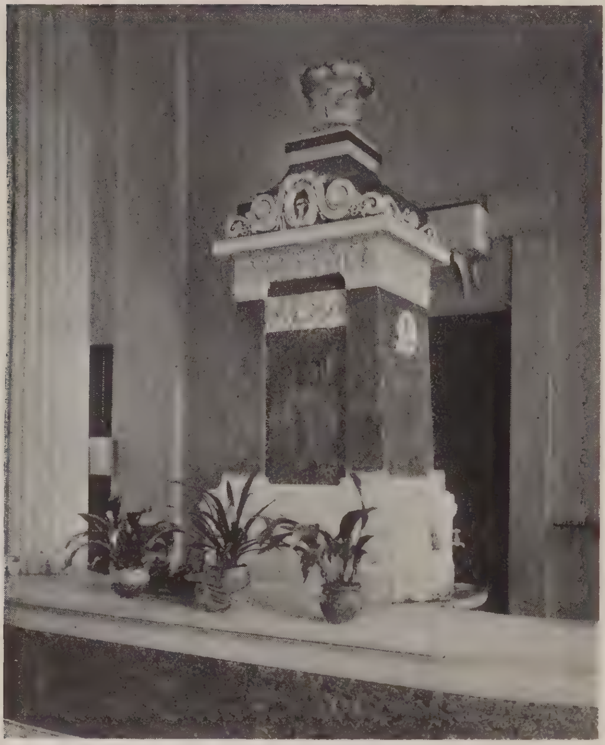
SCALE OF PLAN 1/32" = 1'-0"



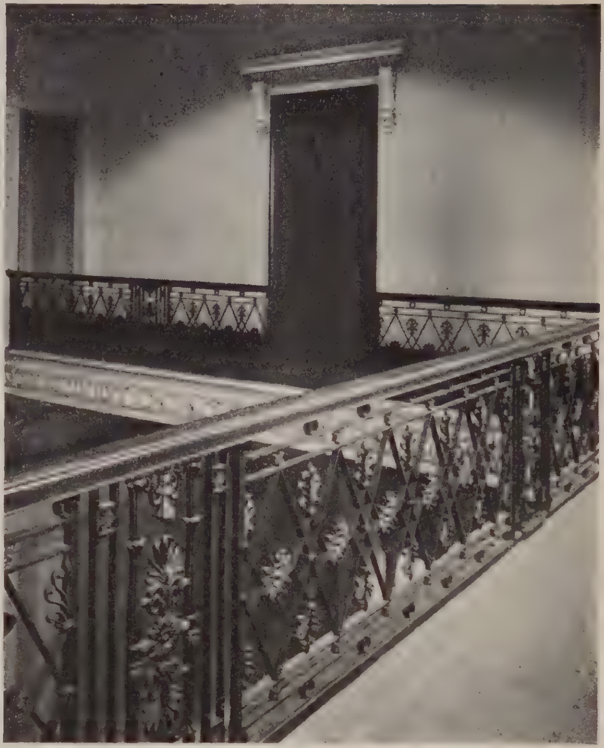
SCALE OF SECTION 1/16" = 1'-0"

PITTVILLE PUMP ROOM

CHELTENHAM GLOS.



The Pump Head

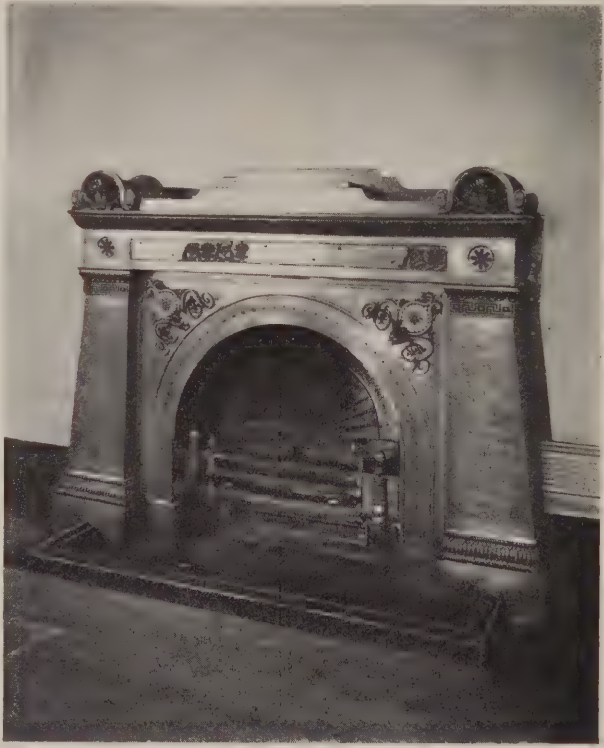


Detail of Balustrade

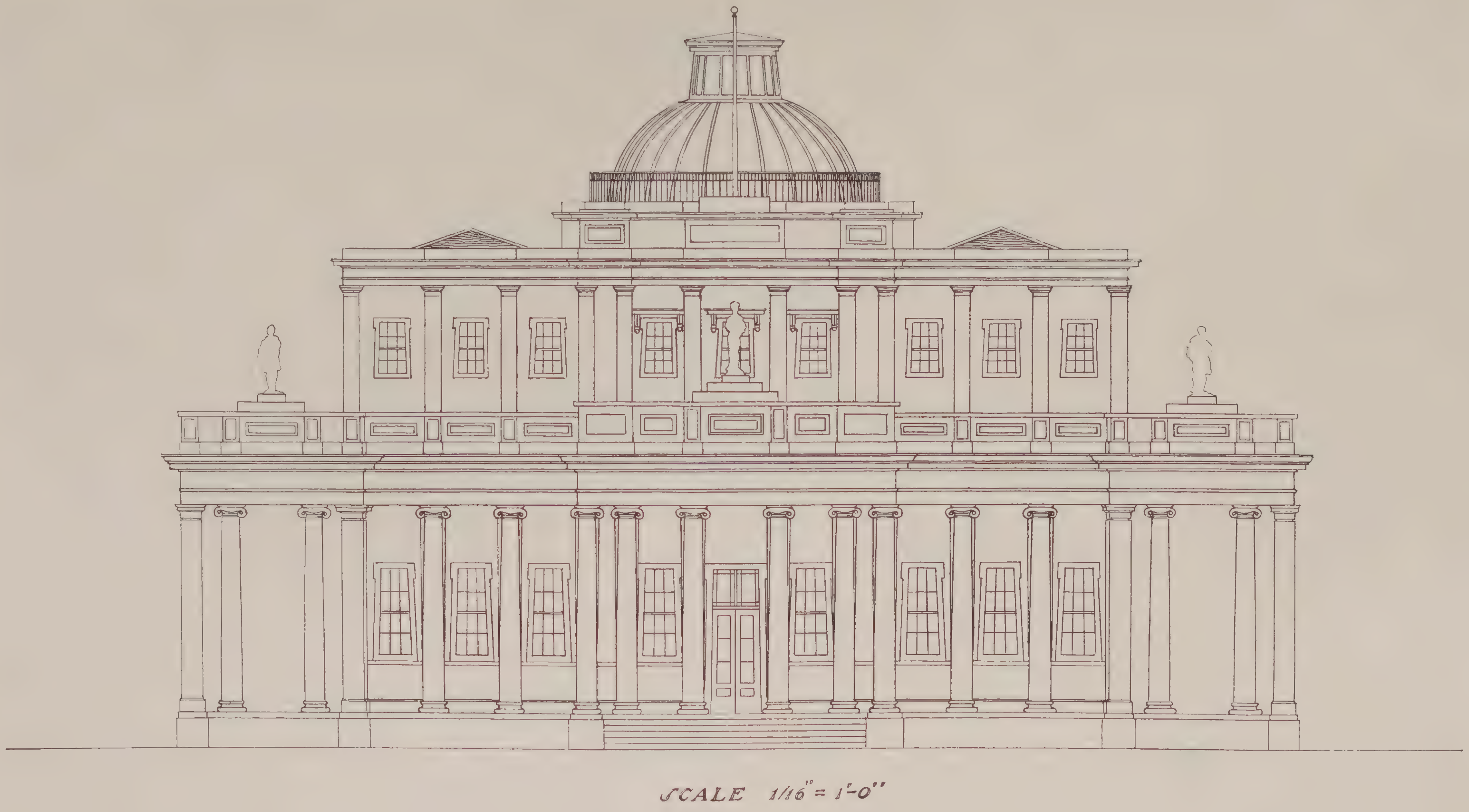
the pump appears, decorated by a marble tripod, after a model from "Rocchigiani's Monumenti Antichi." . . . The walls within are spacious, ornamented with columns and pilasters, well relieved by niches and recesses, breaking in pleasing outlines. The ceiling at each end of the room is arched with a fine, flat sweep and ornamented with bands and double sunk pannels, enriched with foliage, the centre of the building being a square space, opening to the dome. This space, well lighted from behind and in front, by windows beneath the dome, the interior of which springs with enriched sunk spandrils and segmental soffites, finishes with tapering pannels, and with appropriate decorations; the top of the dome being completed by a richly stained skylight.

This premature description from proposed designs, though in the main true of the finished building, noted some intentions that were never carried out. The lights in the dome and the windows at the back of the ground floor were not filled with the colored glass sometimes used at this period, and the pump head was not in the form of a tripod.

The Pittville Pump Room stands on the border land between the Græco-Roman phase of British architecture and the full blossoming of the Greek Revival, when archæology pure and simple marked the last episode of the Classic tradition before the debacle of Victorian incoherence. Built, as it was, when the sophistication and scholarly refinement of the Græco-Roman impulse were giving way little by little to the more purely archæological interpretation of Greek precedent, and at the same time to a certain heavy handed emphasis that had its origin in the note of military pomp and imperial assertiveness injected into Classic expression at the time of the First Empire in France, it nevertheless possesses an exquisite delicacy that would have been impossible of achievement a few years later. It was a forerunner of the Greek dominance without any of the grim coarseness so often imparted to it. Forbes, a virtually unknown architect, had evidently been a close student of Sir John Soane's work and of the work of other illustrious architects who had not yet delivered themselves, body and soul, to the thralldom of Greek exactitudes dished up with Imperial French sauce, and Forbes had profited much by it.

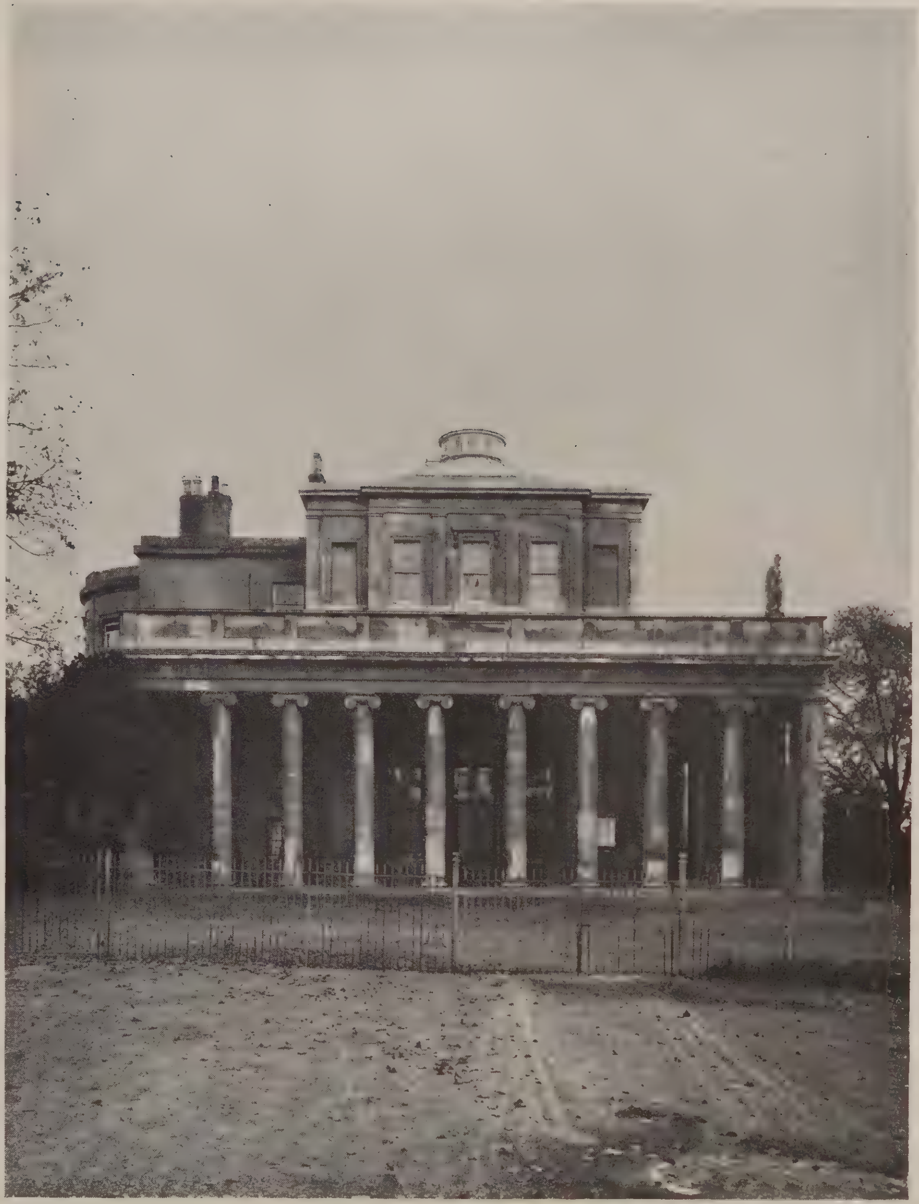


Fireplace in the Pump Room

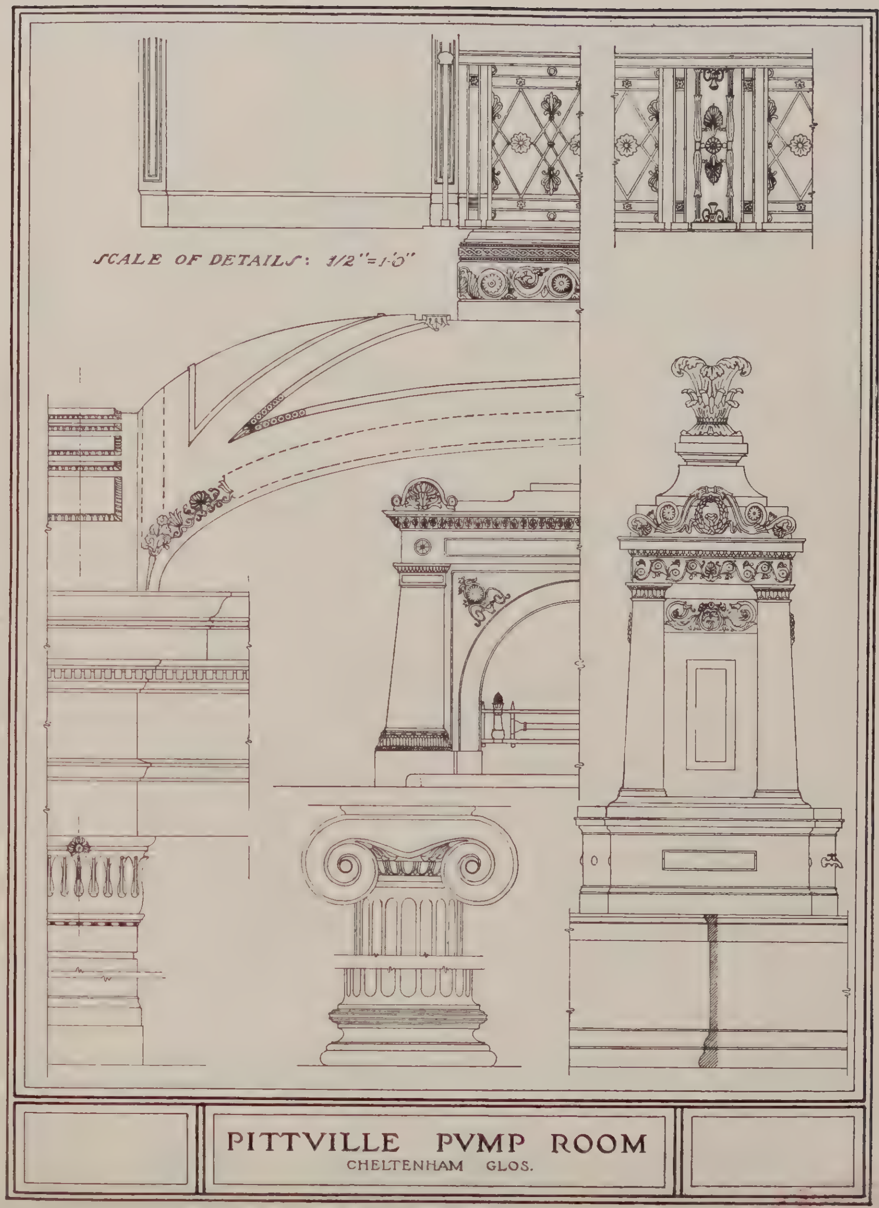


PITTVILLE PVMP ROOM

CHELTENHAM GLOS.



WEST ELEVATION



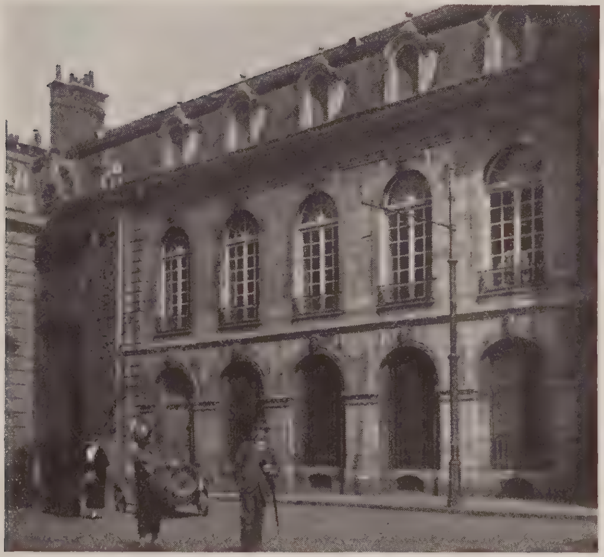
DETAILS

PITTVILLE PUMP ROOM, CHELTENHAM, GLOUCESTERSHIRE

The Forum Studies of European Precedents

STREET FACADES IN DIJON

PART I

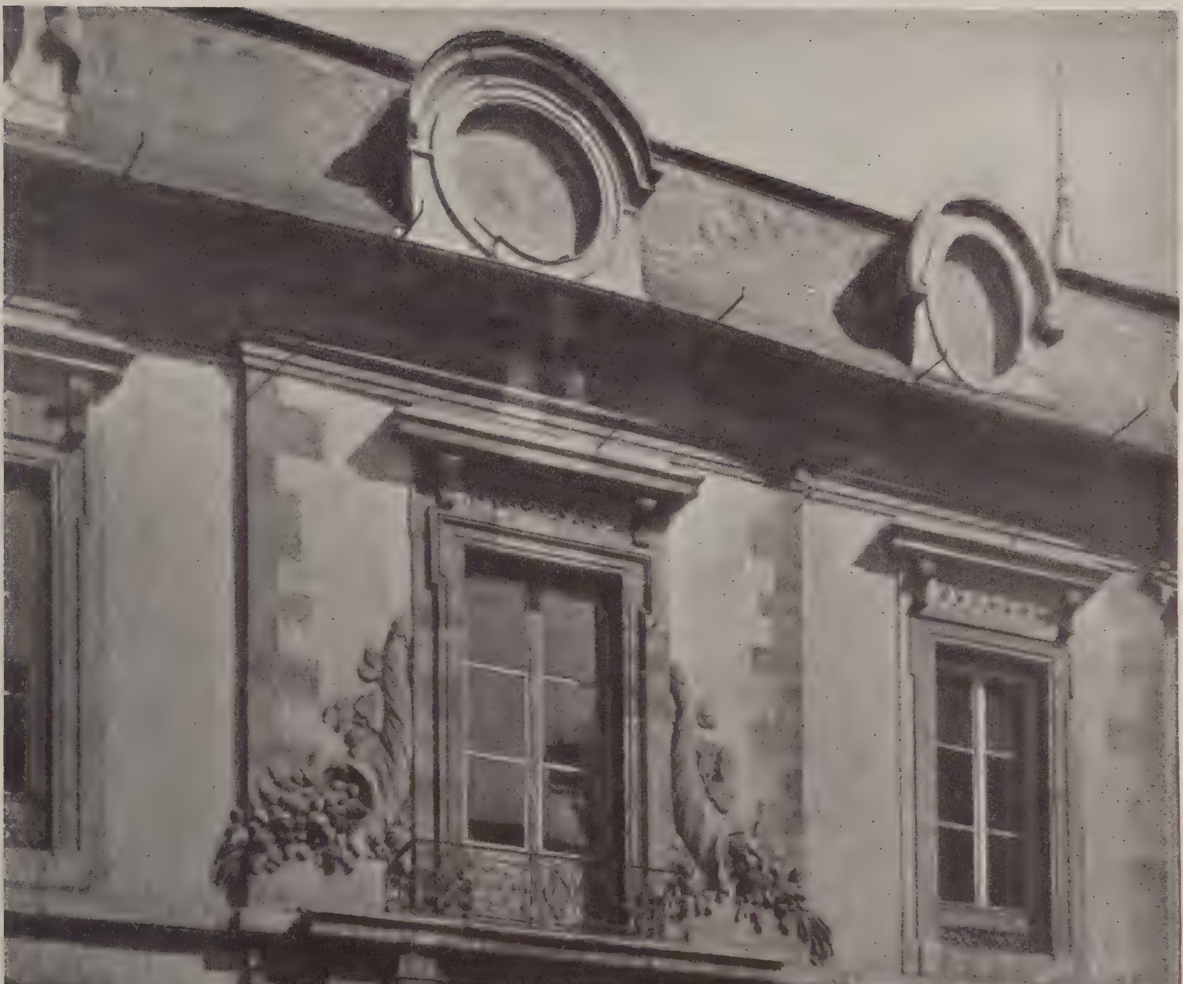


Louis XV Wing, Hotel de Ville, Dijon

IN Dijon, Toulouse, and other important provincial towns of France there are to be found countless interesting examples of early French Renaissance architecture. In Dijon, particularly, there are many houses in this style, showing unusual freedom and individuality in design and great elaboration and exuberance in the use of architectural decoration. This is probably due to the fact that Dijon is sufficiently far from Paris not to be greatly influenced by the trend of its artistic and architectural development. "Indeed," writes Sir Reginald Blomfield in his History of French Architecture, "throughout the sixteenth century, and well into the seventeenth, the two currents of artistic thought, that of Paris and the northwest on the one hand, and that of Dijon and the southeast on the other, kept quite apart and have to be studied independently."

The street facades of the houses of Dijon show a regard for, and an understanding of, balanced and symmetrical design. The fenestration is carefully grouped and studiously proportioned in regard to the wall spaces, after which the imagination of their designers, such as Hugues Sambin, ran riot in the most lavish and extravagant use of rich and florid carved decoration on the facades of many of the houses. The character of this ornamentation is more Spanish than Italian, although not used as sparingly or as appropriately as was the case in Spain. Swags of fruit and flowers, grotesque and conventionalized heads and masks, urns, broken pediments, cartouches, caryatid figures, wall niches and statues of every description were used to conceal the plain wall surfaces, and to adorn the window and door openings and the dormers of the steep roofed houses.

The illustrations of Dijon street facades shown in this group of Forum Studies exhibit, on the whole, considerable restraint and dignity in the use of architectural decoration. With the exception of the Louis XV wing of the Hotel de Ville, all of these houses were built in the early part of the seventeenth century. The date ascribed to the Hotel de Vogue is 1614, but the wing, an illustration of which is shown on Plate 37, is considered to be of later date.



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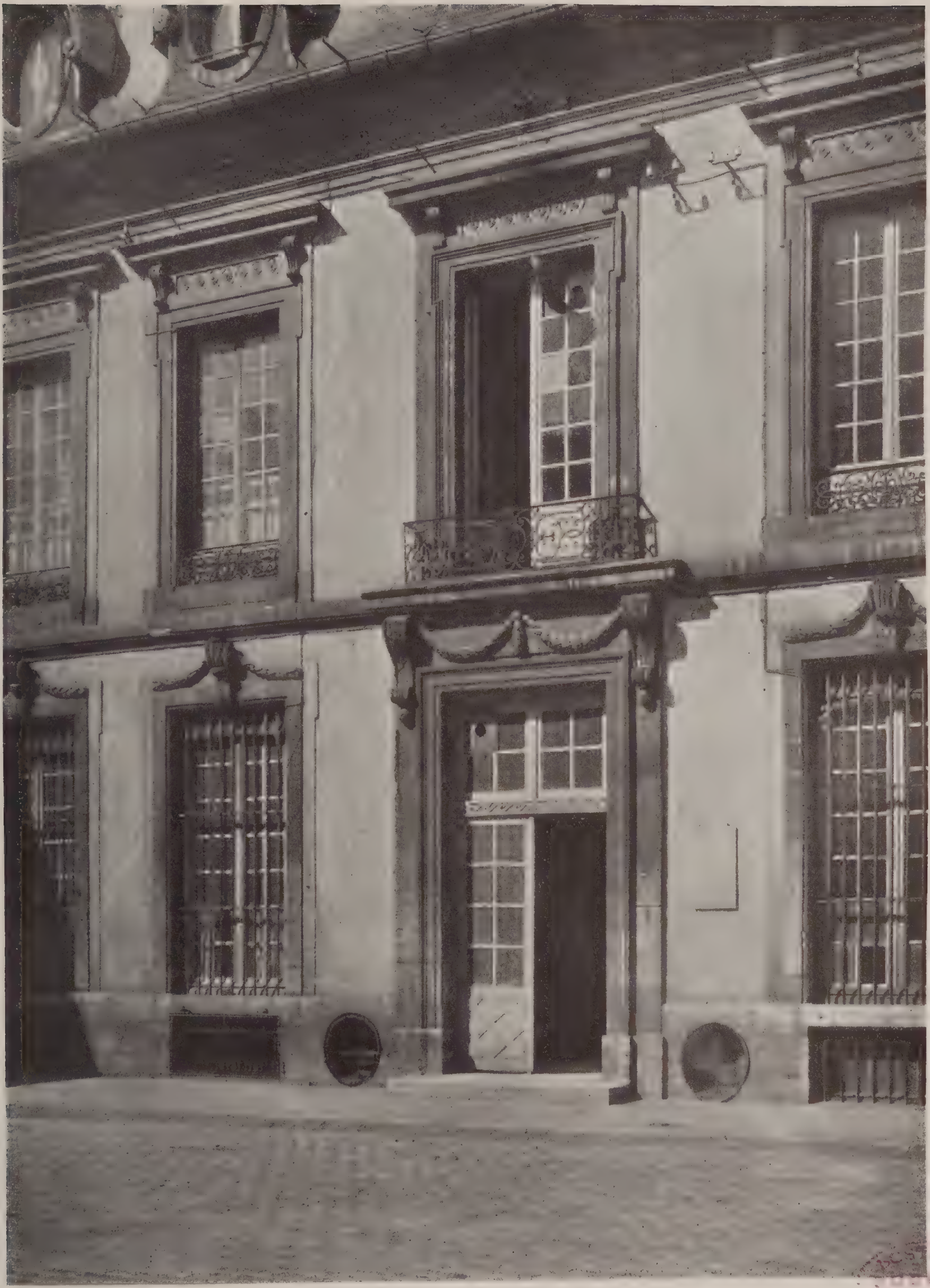
DOORWAY IN COURT, HOTEL DE VILLE, DIJON



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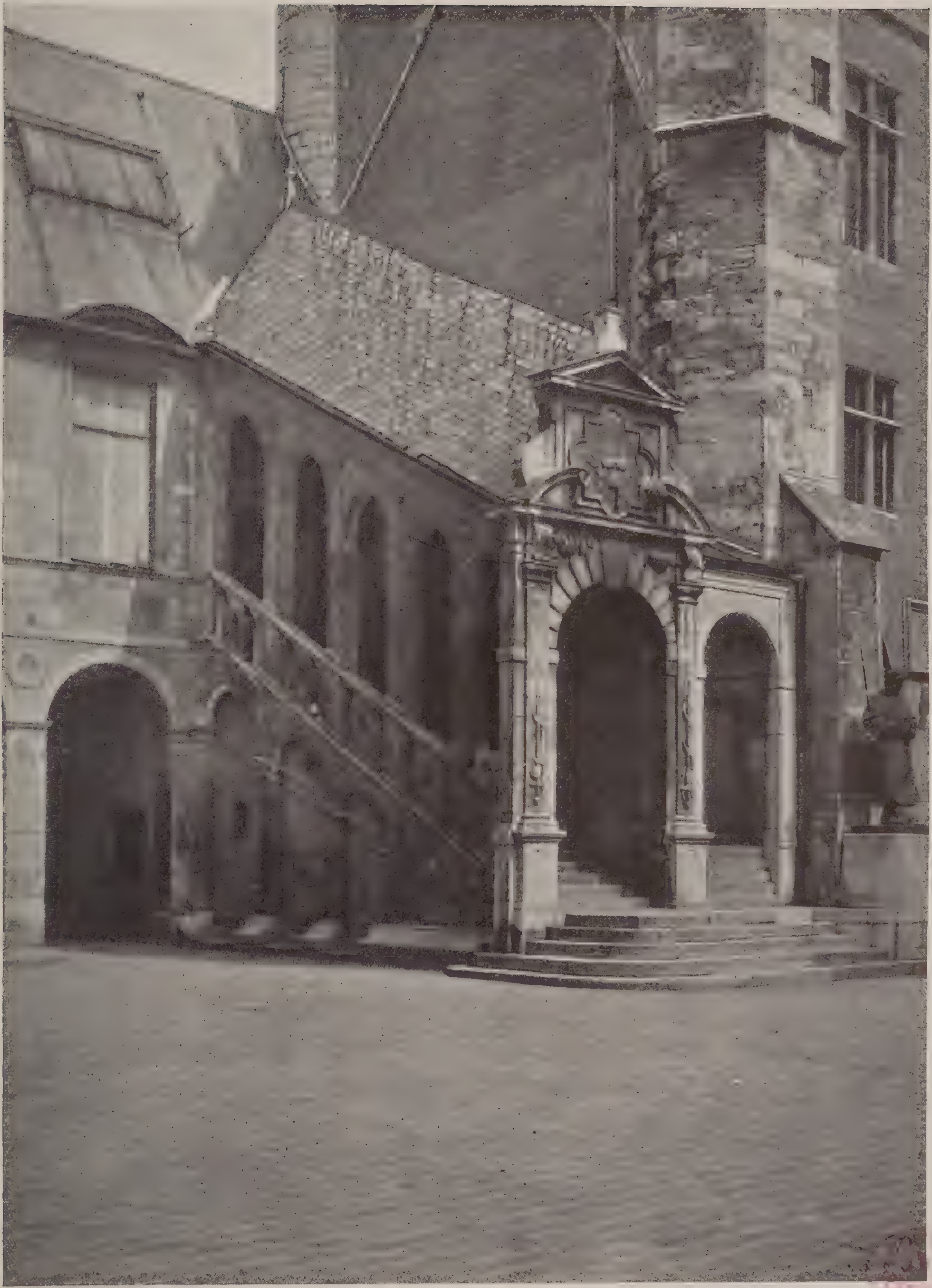
DETAIL, COURT FACADE, HOTEL DE VILLE, DIJON

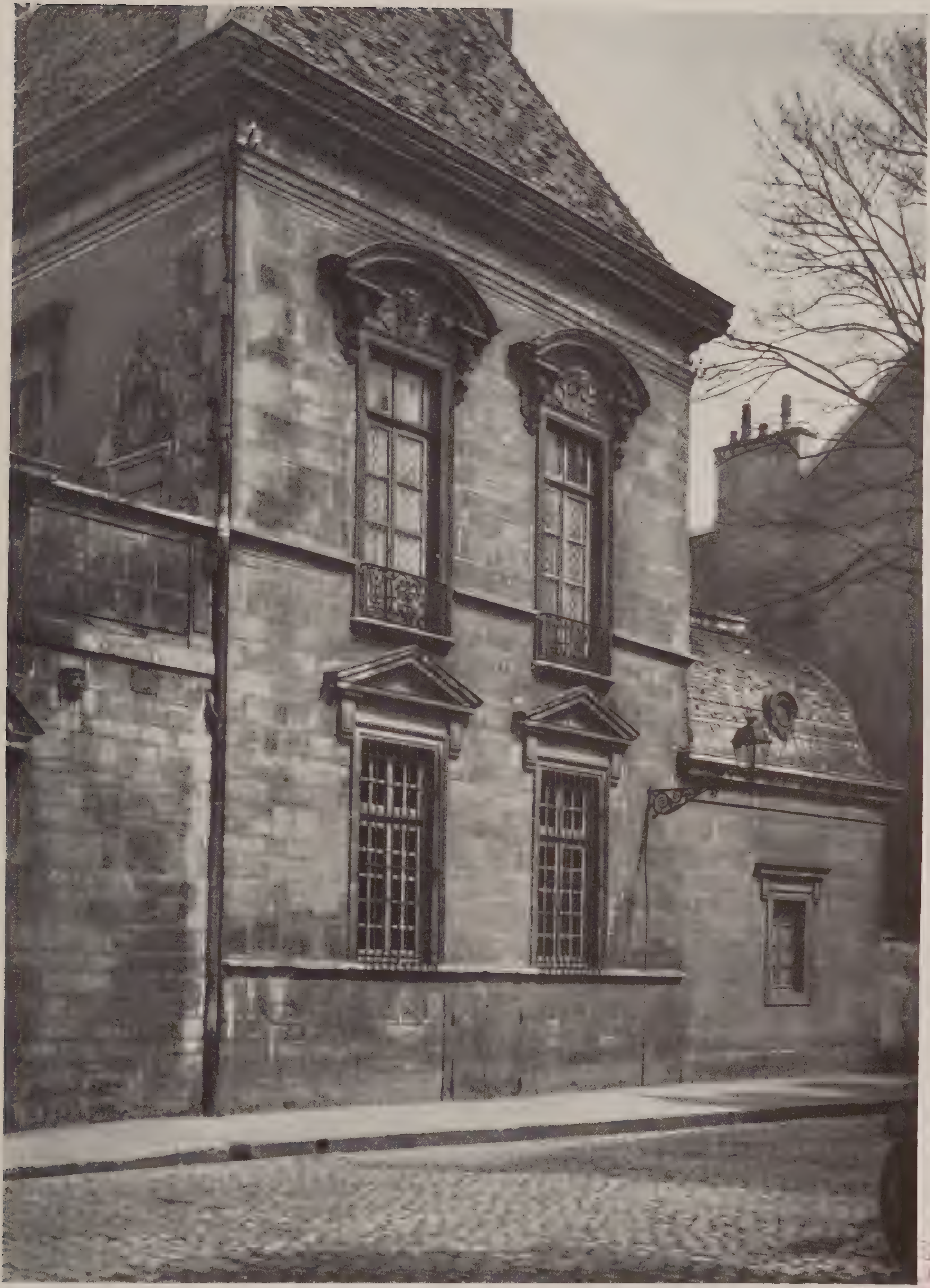
PUBLIC LIBRARY

The Forum Studies of European Precedents; Plate 35



STAIRCASE, MUSEE, HOTEL DE VILLE, DIJON

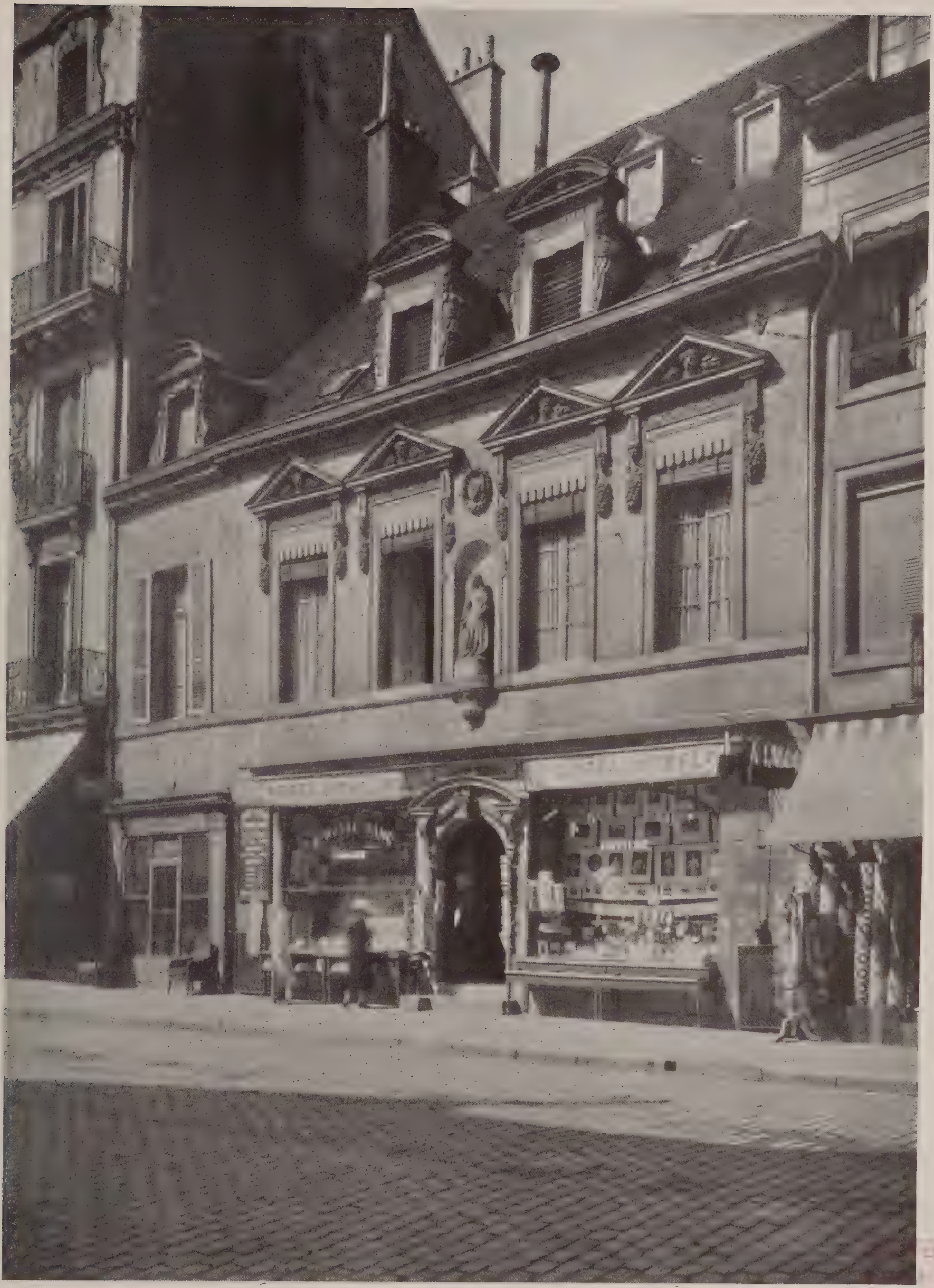
The Forum Studies of European Precedents; Plate 36



DETAIL OF WING, HOTEL DE VOGUE, DIJON

The Forum Studies of European Precedents; Plate 37

LIBRARY



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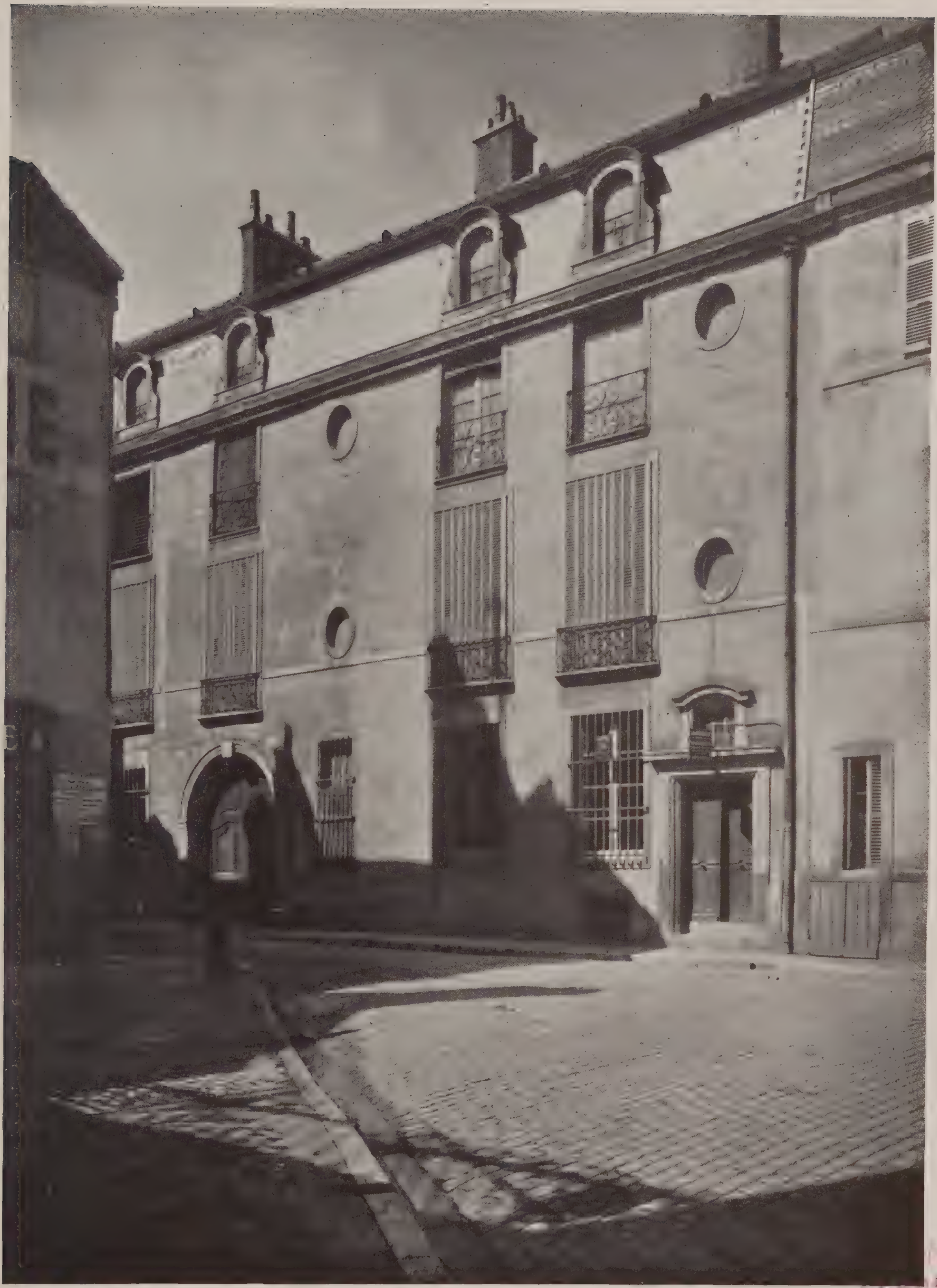
OLD HOUSE OPPOSITE CHURCH OF NOTRE DAME, DIJON

The Forum Studies of European Precedents; Plate 38



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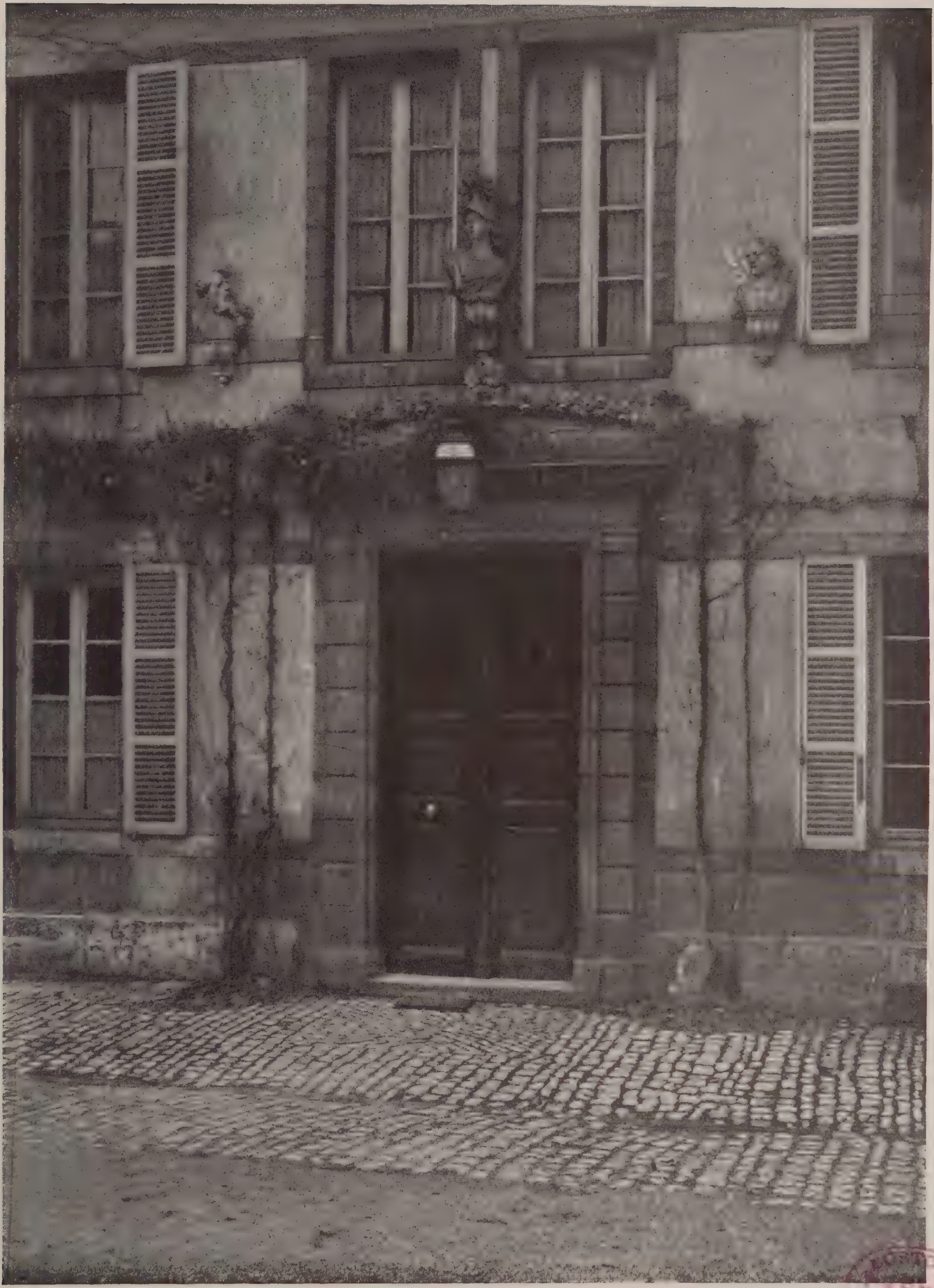
DETAIL OF WING, HOTEL DE VOGUE, DIJON

LIBRARY

The Forum Studies of European Precedents; Plate 39



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COURT ENTRANCE, NO. 37 RUE VERRENE, DIJON

The Forum Studies of European Precedents; Plate 40

SMALL BUILDINGS

On the Designing of Small Libraries

By CHALMERS HADLEY

Library of the American International College, Springfield, Mass.
Kirkham & Parlett, Architects

THE same general principle should be followed in the designing of small as in the designing of large library buildings. The chief difference in the problem lies in the number of people to be served and the number of books to be housed. The problem should be studied under two general heads,—location and plan, the latter dependent upon the former, since the plan of the building must be adapted to the shape of the lot upon which it stands.

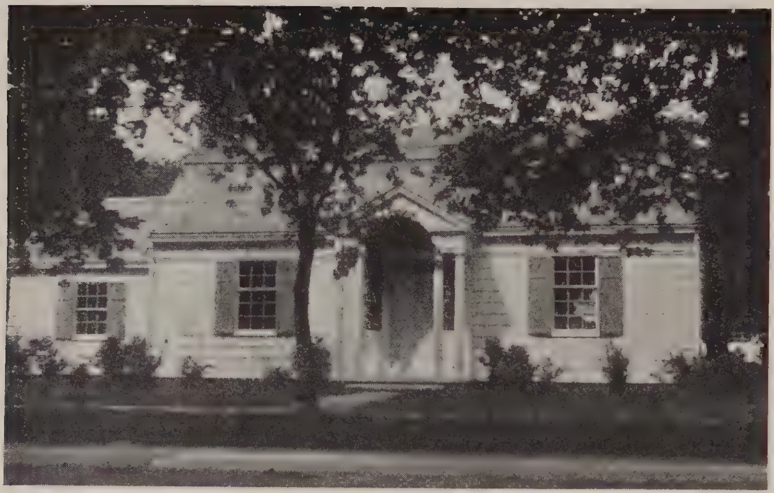
To consider location first, experience has proved that it is far better to pay for a good library site than to accept a poor location as a gift. A library building should be placed at a strategic point in a town, a location which will meet the needs of the largest number of people. Too much cannot be said against selecting a library site on which the building will simply look well, or where it will only add to the appearance of the locality. Service to the public and good appearance of the building can usually be successfully combined; if they cannot, appearance should be sacrificed to service. A location at a street intersection will give additional prominence and publicity to a library,—with resulting noise and dust in the building itself. A site with a pronounced slope at the rear or side will permit an outside entrance to a possible basement lecture room without descending stairs. It will also decrease the underground appearance of the basement rooms facing the slope. In shape a building should be square, oblong, or with angles,—depending, of course, upon the shape of the building site or the amount of space available for the structure. Usually the best shape of plot for library planning is the oblong with the longer side of the building and the entrance facing the street. Such a location will insure there being more air and natural light in the library, especially if it is located between other buildings. The architectural appearance is usually better if the building's longer side faces the street. If the shape of the site is long and narrow, the shortest side or end of the building will have to face the street, and a different interior layout of the plan will be necessary. Realizing the value of front space in a library building, it will be seen that in a small structure particularly there is frequently waste of valuable space in the locating of stairs, vestibules, coat room, toilets, etc., at the front of the first floor, near the entrance.

Now to consider the question of the design, which, once the location is selected, becomes the all-important problem for the architect and the library committee. The design problem divides itself into two parts,—the exterior elevation and the interior plan. First let us briefly discuss the exterior elevation, which determines the architectural character and style of the building. It is noticeable that there has been within recent years a decided departure from the use of the monumental type of architecture for library buildings, a type which, as a matter of fact, should never have been considered for small structures, for which it is not suitable.

The design of the exterior of a library should be appropriate to its environment and to its geographical location. A building in the Spanish style with plaster decorations would hardly agree with the local traditions or meet the climatic conditions of a New England village. Local building materials and local architectural traditions largely determine the style to be followed. No matter what style of architecture is selected for the exterior design of the building, there should be provision of windows of sufficient sizes and heights from the floor to properly light the interior. Good taste and proper appreciation of scale and proportion in the exterior design will produce a satisfactory result, no matter what may be the style or the materials which must be employed.

Before considering details essential to a successful library plan, there are 11 basic principles, laid down several years ago, by a committee of the American Library Association, which are well worth mentioning here, since they are of real importance:

1. Every library building should be planned for



Bellport Memorial Library, Bellport, N. Y.
Aymar Embury, II, Architect

the kind of work to be done and the community to be served, no two sets of conditions being alike.

2. The interior arrangement should be planned before the exterior is considered.

3. Plans should provide for future growth and development, with increased use and more funds.

4. A library should be carefully planned for economical administration and efficient management.

5. Public rooms should be planned for complete supervision by the fewest possible attendants.

6. No convenience of arrangement should be sacrificed for architectural effect or for appearance in any form.

7. There should be no decoration of reading rooms or working rooms which attracts sightseers to disturb readers and attendants by constant inspection.

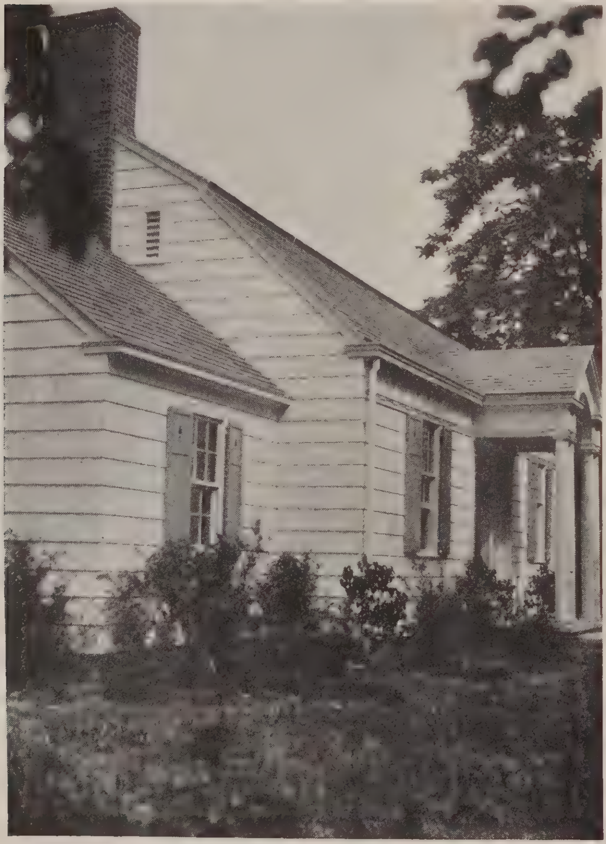
8. There should be good, natural light in all parts of the building. Windows should extend to the ceiling to light the upper portions of every room. In a book room or stack, windows should be opposite the ends of the aisles.

9. No shelf should be placed so high as to be out of reach of a person of medium height, standing on the floor.

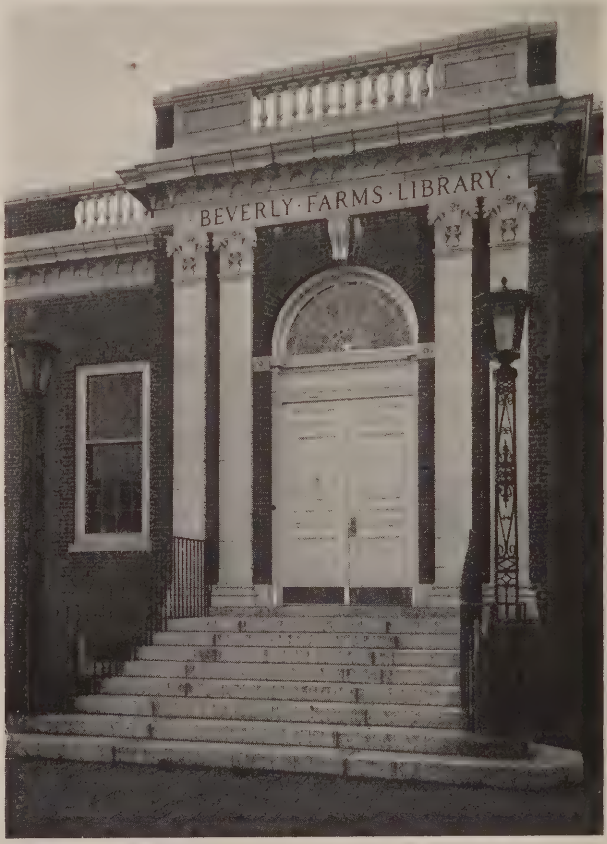
10. Flights of stairs should be straight and not circular.

11. Communication by telephone or speaking tube should be arranged between the working rooms to facilitate operating.

With these principles in mind, the requirements of a small library should be carefully studied. There must be a delivery or librarian's desk centrally located, usually opposite the entrance door. Spaces set apart for adults' and children's reading rooms must always be included. If the size of the building permits, a small room with toilet attached should be planned for the exclusive use of the librarian. A small trustees' or conference room is always con-



Detail, Bellport Memorial Library, Bellport, N. Y.
Aymar Embury, II, Architect



Detail, Beverly Farms Library, Beverly Farms, Mass.
Charles G. Loring and Joseph D. Leland, Architects

venient. A coat room and toilets for public use must be accessible. Small libraries seldom have space to spare for the introduction of reference and periodical rooms, but if possible, it is wise to make such provision. A work or repair room as well as a receiving and shipping room should be included, preferably in the basement. It is often possible, in a small library, to combine these two rooms into one. Provision should also be made at the rear of the main floor for a future stack room to allow for the probable increase in the number of books. In many small library buildings the basement plans include lecture halls, capable of seating from 100 to 150 people. Such a hall, which is a great convenience to a rural community, can be used to advantage both socially and educationally. A hall of this kind must be provided with adequate and direct exits, and with coat room and toilet facilities. It is often possible to have these conveniences so located that they will answer not only for the public using the library itself but also for the people attending lectures and social affairs in the basement hall. The basement plan must further include a boiler and coal room. Often it is advisable to provide a small kitchen and a storeroom. The latter room might well be combined with the receiving and work room, if this is located in the basement. The possibility of locating a lecture hall in the basement of a small library building depends not only upon the possible local need for such a hall but also upon the topography of the site of the building. If the land does not fall away sufficiently at the rear or side of the building to allow good sized windows in the basement lecture hall, it will be necessary to have this room lighted and ventilated by windows opening

Walter Hines Page Library, Huntington, N. Y.
Charles G. Loring, Architect

Detail, Memorial Library, Bound Brook, N. J.
Jardine, Hill & Murdock, Architects

Detail, Walter Hines Page Library, Huntington, N. Y.
Charles G. Loring, Architect

Carnegie Public Libarry, Perry, N. Y.
Beverly S. King, Architect

into deep areas. This arrangement is always unsatisfactory and in addition is generally unsightly.

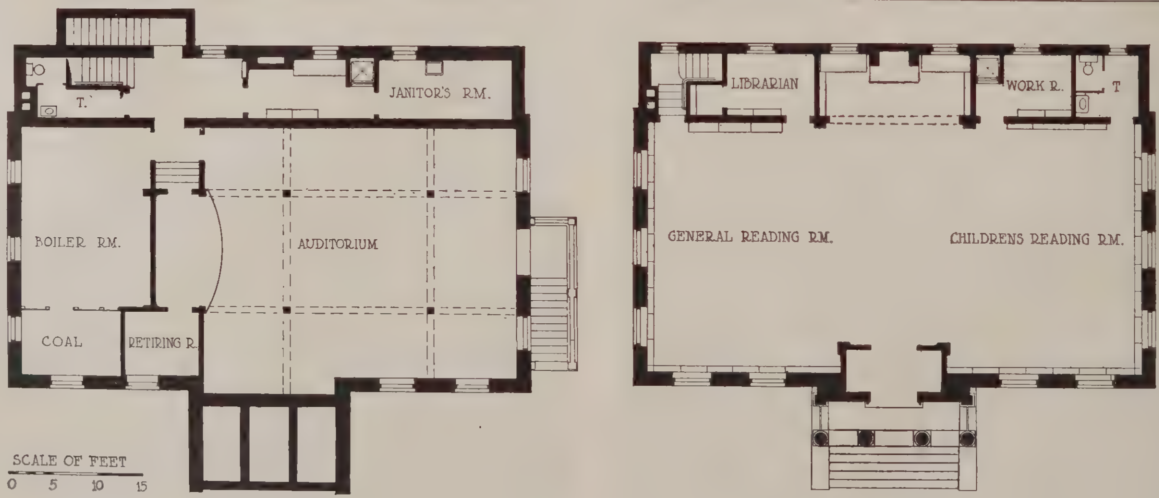
The simpler the plan of the small library, the better. Experience has shown that one large room occupying the entire floor space of the building is the most economical and most practical, both as regards supervision and public use. Structural partitions in this main room should be omitted as far as possible. Areas of space on this floor, such as the children's room, the adults' reading room and the delivery room, can be much better provided for by outlining these rooms with double-faced floor bookcases than with partitions. Walls and permanent partitions are expensive, inflexible, and shut out the light. It may be necessary, however, to enclose the librarian's room and the work room, if these are located on the main floor, in order to give these rooms proper privacy and necessary seclusion during the library's working hours.

The most common and expensive mistake in planning library buildings is to underestimate a library's growth and the future needs of an increasing number of readers and books as the library develops.

If the work and number of books in a library grow beyond the library's capacity to handle them, it will become necessary to add to the building. The usual way to increase a building's space is to add a stack room to the rear of the original library building. This room will house the book collection in a compact and accessible form, and leave the floor space of the original building free for public use.

Once the plan is determined upon, there still remains the subject of equipment. This includes proper lighting and ventilating, heating, floor covering, interior finish, and the possible necessity of installing a book lift from the receiving and work room in the basement to the librarian's room on the main floor. On each one of these subjects a separate article might well be written. Suffice it to say that high windows are increasingly favored in library buildings, as they permit an unbroken stretch of wall shelving below them, thus increasing the book capacity. Direct lighting by means of shaded table lights is preferable to any type of indirect ceiling light. The general artificial lighting of the rooms themselves may be secured through suspended ceiling lights, or by wall brackets, located at regular intervals high up on the walls of the room between the windows. Public toilet rooms for both men and women, located well apart, are a necessary nuisance. It is better, if possible, to place them in the basement than on the main floor. Top floors made of composition materials are often used, as uncovered wooden floors are cold and noisy and likely to be uncomfortable in winter.

In small libraries it is seldom necessary to go to the expense of installing artificial ventilation. If the single large room of the library is surrounded by windows on all sides, the question of ventilation is not serious. The method of heating may be determined very largely by the preferences of the building committee. After all, the most important features of a successful library plan are the simplicity and practicability of its interior arrangement.



Basement

First Floor

The Carnegie Public Library, Perry, N. Y.
Beverly S. King, Architect

Library Shelving and Interiors

By JOHN ADAMS LOWE

Assistant Librarian, Brooklyn Public Library

FORWARD-LOOKING architects and practical building committees are making superb strides in plans of buildings for small public libraries, and perhaps at no other point in the planning is the appreciation of what the modern public library is and what it will be tomorrow more clearly shown than in the housing of the books. It is true that new buildings are still being erected according to plans which carry on the old tradition and which represent the understanding of a library 25 or 50 years ago; then the small public library was considered to a greater or less extent a place in which books should be stored. An architect, therefore, who could make the best provision for the largest number of books in the space available was deemed most successful. Little else seemed to be important.

An arrangement unique in my experience, although it may have been duplicated many times, exists in a small library of which I know. When it was discovered that all the books could not be accommodated on the shelves of the reading room in this library, although they extended from the floor to the ceiling and covered every inch of space not occupied by doors and windows, the ceiling was removed and the shelving run straight up the walls into the space above. The shelving must be all of 14 feet high. To be sure ladders of generous length and weight are always at hand, but most of the borrowers are women, who in spite of wishing to be considered modern, still object to moving the ladders and mounting them for any book. The result is that the books at the top of the room dry out or disintegrate into their elemental dust, unmolested;—nevertheless, shelves have been provided for all the books. To my mind another and more common solution of getting the books into space, irrespective of their use, is not one whit less ridiculous. This is that absurd method of filling the space with an iron stack. This stores books successfully; the stack has legitimate uses, but never in a small library building housing less than 10,000 volumes. Its place is in a large library, where great numbers of books are to be compactly stored, and indeed in what is perhaps the most interestingly planned building recently erected, the Cleveland Public Library, there is no great general stack room, the books being grouped according to the subject division in which they are to be used, a practical and convenient arrangement.

Avidity for utilizing space for books is manifest in shelving them over heat radiators without heat ducts back of the cases; in covering the front of the loan desk with shelving, at just the most congested point in the entire library at certain times of the day; in using the backs of settles for book shelves,

Detail, Walter Hines Page Library, Huntington, N. Y.
Charles G. Loring, Architect

Detail, Children's Reading Room, Public Library, Needham, Mass.
Ritchie, Parsons & Taylor, Architects

Library of the American International College, Springfield, Mass.
Kirkham & Parlett, Architects

and even crowding every inch of space over a fireplace mantel. Truly, it would seem as if the only thing which had been considered in some buildings had been the crowding in and compactly storing of all the books that could be gotten in. Today the small public library, properly administered and maintained, is a vital educational and social welfare force in the community, with a thousand interests and appeals, and it is far from being merely a storehouse for books. On this account only, can he who plans his building to meet as many of the functions of the small public library as possible hope to erect a structure which will be adequate and satisfactory in the service of the future, with all its demands.

Quiet is a factor which every library used to emphasize. I recall a library building designed like an Egyptian tomb. When the visitor pushed in the massive door he found himself thrust into what was practically the very pedestal of a piece of sculpture of a boy whose raised index finger was pressed across his lips, and beneath a legend, "Silence." It was effectively operative. The place was always practically deserted. The abnormal silence of the early 90's in libraries has gone. They are quiet places today, but the desire to make books of use to readers necessitates consultation, and we have places of varying degrees of quiet. The shelving of books has a very definite bearing on this problem. Quiet is observed simply for the convenience of readers. The business of books and their handling must contribute to it. If books can be so divided and shelved that they may be used independently by the various groups of readers, would it not seem feasible that each group should be most efficiently served? A considerable part of the day's work is devoted to supplying books to borrowers who wish to take them home for reading. These patrons ask little more than accessibility and convenience in making their selection. It is the almost universal practice to place all books on shelves entirely open to the public. However, if the shelves run around the walls of the reading and reference study rooms, the noise and confusion of borrowers is extended beyond the loan desk to the reading room. Certain it is that provision made near the loan desk of shelves for books of special collections likely to be required for home use, or for duplicate pay collections, centers much of the lending process there.

On the other hand, another group of books needs to be shelved together in a place free from the confusion caused by the coming and going of borrowers, and these are the encyclopedias, atlases, and recently bound volumes of magazines. In addition there are books temporarily restricted at the library in order to meet the current demand of a number of students. These are usually kept on shelves behind an attendant's desk. A vertical file for pamphlet and clipping material is an essential to the reference librarian and should be placed near her desk, if it is not feasible to include it in the wall shelving. Shelves are also needed upon which groups of books may be reserved for the use of classes in schools, reading clubs, study groups, etc. Much of this material has to be placed in such a position

Library of the American International College, Springfield, Mass.
Kirkham & Parlett, Architects

that the librarian has complete command of it, and in many cases it is worth while to shut it off completely from the general library user. A still more restricted and personal use is made by persons doing continuous study, who wish to have books near at hand and a table and chair conveniently close enough to consult them easily. Such students are annoyed by persons crowding behind their chairs to look at books on the wall shelves.

In a number of libraries rooms for "browsing" are popular and are considered valuable. The fact that the entire collection of books is open to everyone raises the question as to whether, because that privilege is extended, it is unwise to make a selection from it of books which might be especially appealing. No library built today fails to provide for a children's room and for arranging there the juvenile books by themselves. Moreover, in many small libraries another division is arranged whereby special provision is made for the between-age boys and girls, corresponding to the junior high school principle, arranging books likely to attract them.

Newspapers do not usually present a problem as regards shelving, in the small public library. If there is a local newspaper, it should be bound and preserved, but it is not necessary to devote valuable space for shelving it, for it will not be frequently consulted. The present practice is to lay out the main floor of a small public library in one room as far as possible. Practically no partitions are used, but divisions are made by book shelves instead. In many places in which supervision demands it, shelving no more than 4 feet in height is used to advantage. Chalmers Hadley has recently pointed out that, "a safe rule regarding book shelving in small libraries is to have no book stacks until the shelving capacity of all wall and floor cases has been exhausted; and have no floor cases, except to divide floor space, until the capacity of all wall shelving has been exhausted, and," he adds, "another good rule is to have no steel or other metal shelving until it is necessary to have the book stacks two or more stories high. Wooden shelving is less expensive than metal, it is more beautiful and is more comfortable to work with in cold weather. It will be well to have all shelving, furniture and trim in the library of the same wood and finish."

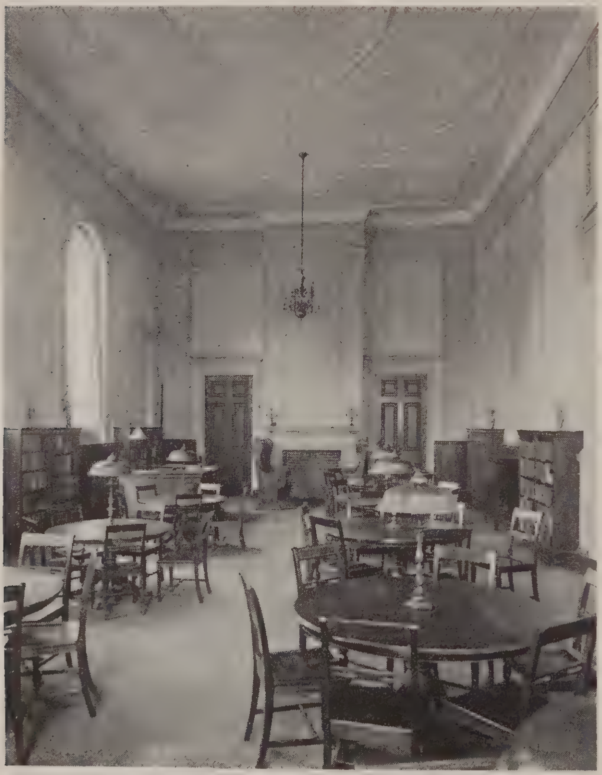
The standard wall case is one with a baseboard 4 inches high, seven shelves high, with the supporting uprights 1½ inches thick and a cornice 3 or 4 inches deep. The uprights should not be over 3 feet apart or the weight of books on the shelves will be likely to make them sag. All shelves should be adjustable, and the pinholes should be 1 inch apart. For oversized books, a few cases with shelves 12 or more inches deep and high will be sufficient in the ordinary small library. In planning required shelf capacity it is essential to think of the building as serving practically without general alterations for 20 years. It is easy by estimating the growth of the book collection at the present rate for that time, to get the maximum capacity required. It is to be kept in mind, however, that there will be constant book withdrawals, owing to wear, as well as addi-

Whitinsville Library, Whitinsville, Mass.
R. Clipston Sturgis, Architect

Reading Room, Public Library, Needham, Mass.
Ritchie, Parsons & Taylor, Architects

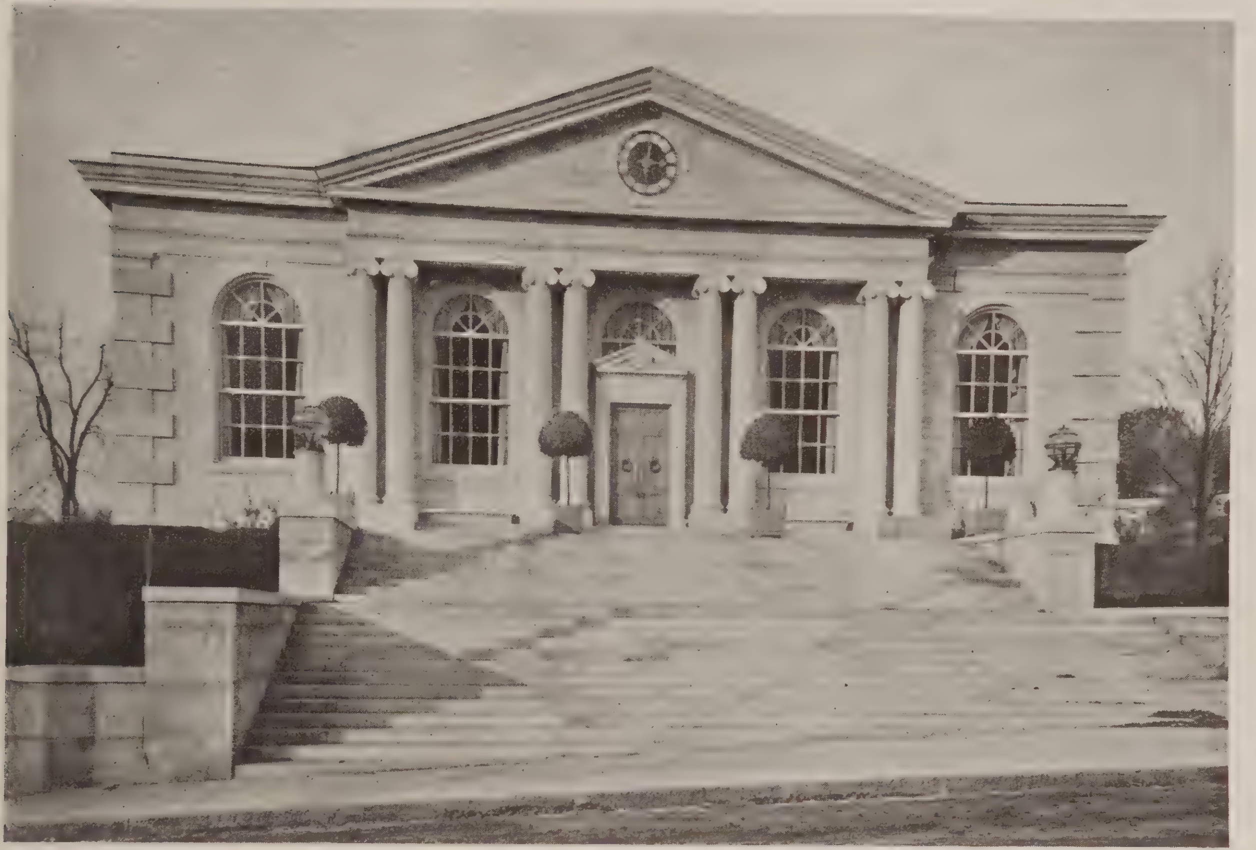
tions. It is the present practice of librarians to discard "dead" books so rapidly that in many cases the number of volumes of a collection remains fairly constant. To estimate capacity, take as a measure eight books to the running foot. One third of each shelf should remain vacant to avoid constant shifting of books on overcrowded shelves, and to decrease the wear and tear on too tightly shelved books. In wall cases seven shelves high, the capacity is 56 volumes per foot. Double-faced floor cases of this shelving have a capacity of 112 volumes a foot. Floor cases should be placed at least 4 feet apart if the general public is to be allowed to consult books on the shelves. The shelves in the children's room or part of the main room devoted to children should not be as high as those in the adult sections. As an emergency measure we tolerate that plan which builds all shelving the same height, but covers up the two top shelves in the children's room with a panel hinged at the top and caught at the bottom. These panels, being made of a frame filled with cork carpet, are used as bulletin boards, and the space back of them for storage purposes. To my mind, wherever possible, it is better to treat the thing honestly and make the shelves the right height for the children, and utilize the wall spaces above for large pictures. Instead of storage spaces, these cupboards become catch-alls, and as a general thing the pictures which are put on these suggested bulletin boards are so small and so high above the children's line of vision that they are worthless for this purpose.

Recent libraries possess a great deal of charm and attractiveness. Their architects have been able to get away from the "storage" idea. They have abandoned for the small library a stack which manifestly is a storage utility and makes no appeal to a book-lover to browse and to read. They have utilized the lure of books, themselves properly placed, which is after all one of the best decorations a library can have. The next step will be that courageous architects and building committees will give more and more study to the problem of placing shelves for the convenience of people using the books on them and for the attractiveness of the whole scheme. It may be that they will evolve something entirely new in the arrangement of shelving. Instead of filling every available space with books, wherever they may chance to stand, each unit of the plan will be studied for its use and the shelving prepared accordingly. Books that are intended for home use only, will be placed near the loan desk, together with groups of special collections for borrowers. The newest additions to the library will be displayed there. This unit will be worked out on many of the same principles which govern the attractive book shop. The unit for children will be developed by itself. For serious study another unit will be planned, free from noise and confusion of borrowers, containing only those books most essential for the use of students; and this planning will be done not with the idea of doing something unique and novel, but with a more carefully thought out plan of making books convenient to the particular group of people who shall use them, which after all is a library's function.



Children's Room, Beebe Memorial Library,
Wakefield, Mass.
Cram & Ferguson, Architects

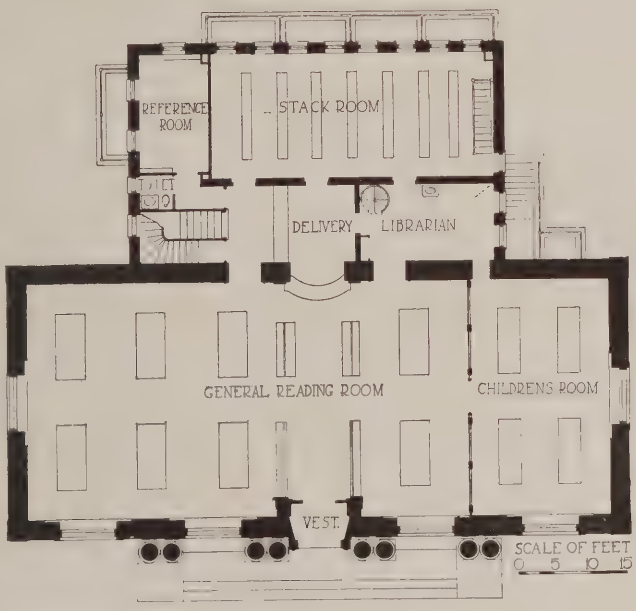
Entrance Hall, Public Library,
Rye, N. Y.
Hobart B. Upjohn, Architect



GEORGE MAXWELL MEMORIAL LIBRARY, ROCKVILLE, CONN.
CHARLES A. PLATT, ARCHITECT

THE old saying that "A thing of beauty is a joy forever," is quite as true and applicable in architecture as in any of the other arts. In the gradual development of American architecture, each year brings forth new designs, solving new problems and showing fresh inspiration. The problem of designing a public library for a small town has been successfully developed and worked out during the past 20 years in a great many attractive examples and varied styles of architecture. Earliest and foremost among the successful solutions of the small library problem is the Maxwell Memorial Library at Rockville, Conn., designed by Charles A. Platt in his inimitable style, inimitable because in all Mr. Platt's work is found delicacy of detail, refinement of taste, and dignity of design approaching ultimate perfection. Combined with these salient traits is an innate appreciation for, and understanding of scale, proportion and balance, which only an artist-architect is likely to possess. In these all-important qualities, the Maxwell Library stands preëminent as being all that a small library should be.

Situated on rising ground and approached by two tiers of broad granite steps, the marble walls and pedimented Ionic portico of the building itself stand with imposing dignity. In style the building is a combination of Greek and Colonial, of five well proportioned Colonial arched windows, three of which are grouped under the center Ionic portico, indicating the general reading room, which occupies the entire front of the building. A monumental



First Floor

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET—25

George Maxwell Memorial Library, Rockville, Conn.; Charles A. Platt, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Fireproof.

EXTERIOR MATERIALS:
White marble.

ROOF:
Slate.

WINDOWS:
Wood, double-hung.

FLOORS:
Quartered oak.

HEATING:
Hot air.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

(*Perspective and Plans on Preceding Page*)

INTERIOR MILL WORK:
Quartered oak.

INTERIOR WALL FINISH:
Smooth finished plaster, painted.

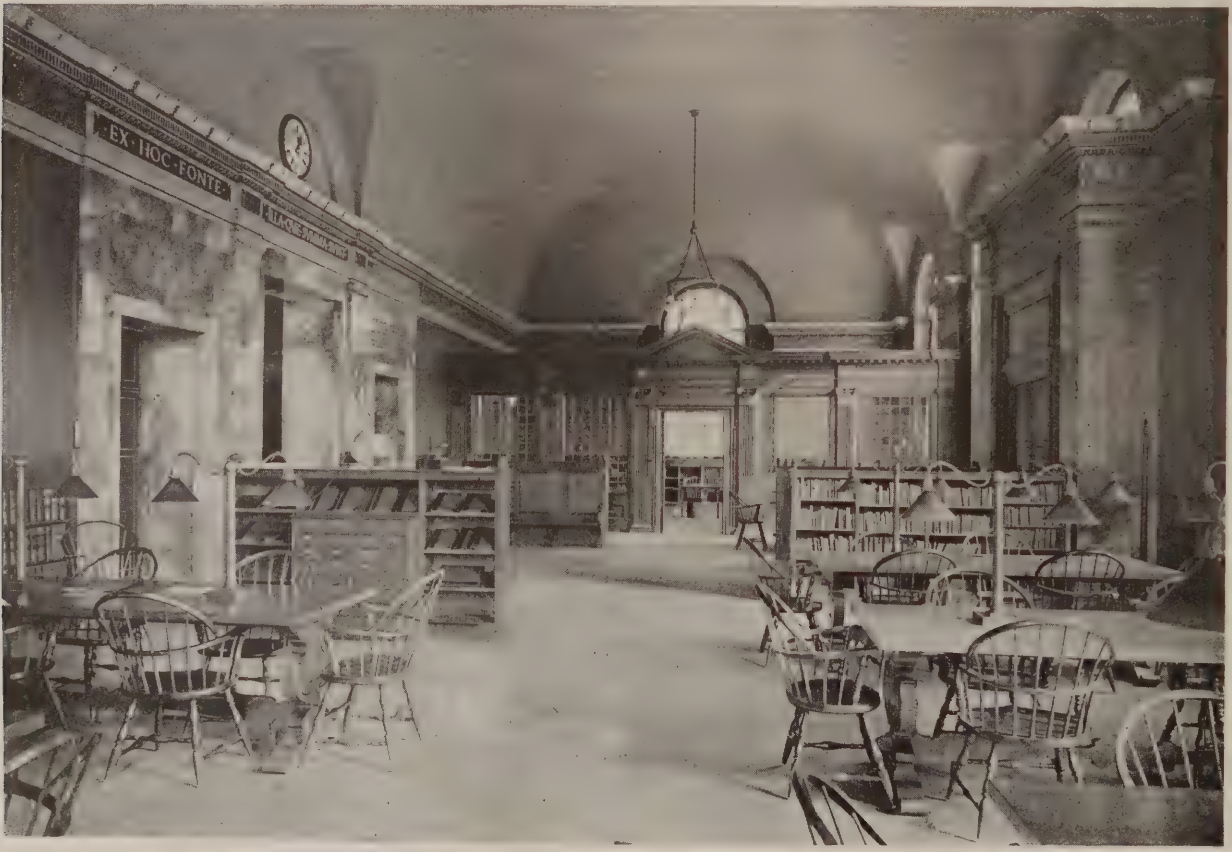
INTERIOR DECORATIVE TREATMENT:
Marble pilasters and panels, carved oak, screen, ornamented plaster frieze and cornice.

NUMBER OF BOOKS PROVIDED FOR:
Approximately 30,000.

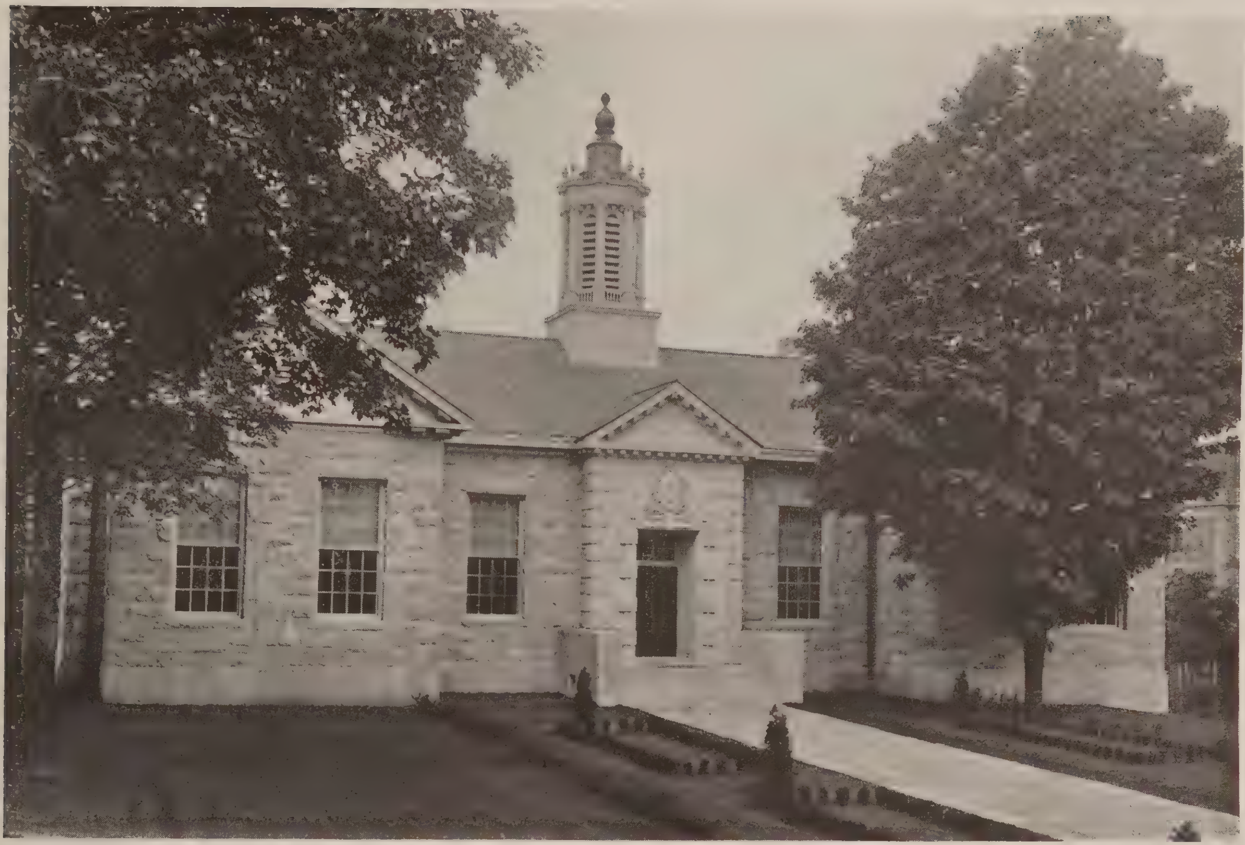
APPROXIMATE CUBIC FOOTAGE OF BUILDING:
190,000.

YEAR OF COMPLETION:
1903.

entrance door breaks into the arched window at the center of the design in a frank and successful manner, treated in such a way that the window is felt to exist back of the entrance door, thus preventing another break in the continuity of the five arched window openings. This was one of the first instances in modern American architecture of the introduction of an entrance door in a window motif. Since this precedent was established there have been countless examples in bank buildings as well as town halls and libraries of this combination of pedimented doorway and arched opening. Coupled Ionic columns give strength and grace to the center feature of the design, the projecting portico permitting use of free-standing columns instead of the more usual engaged columns or pilasters.



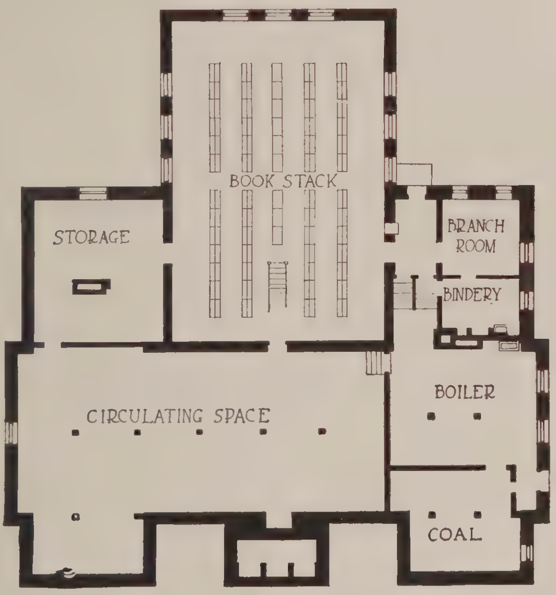
View General Reading Room Toward Children's Department



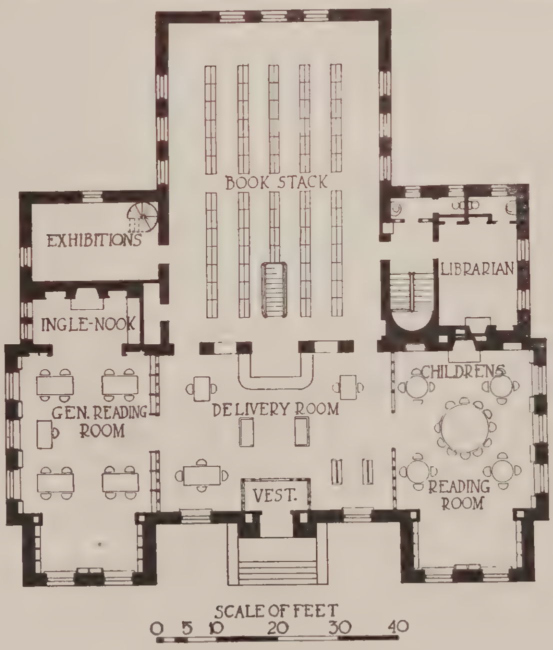
WHITINSVILLE LIBRARY, WHITINSVILLE, MASS.
R. CLIPSTON STURGIS, ARCHITECT

ALTHOUGH it is several years since Mr. Sturgis designed and built the Whitinsville Library, no better example of logical and practical planning exists in this specialized field of architectural design. Executed in local white granite of rough texture and irregular bond, the exterior of this little building shows in a simple, straightforward design a suggestion of the interior plan. Each of the small bays which balance the front facade indicates one of the two reading rooms, which in plan balance the center of the delivery room. A few ornamental architec-

(Outline Specifications, Details and Cost on Next Page)



Basement



First Floor

FORUM SPECIFICATION AND DATA SHEET—26

Whitinsville Library, Whitinsville, Mass.; R. Clipston Sturgis, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Fire-retarding, except front roof, which is wood frame with metal ceiling below.

EXTERIOR MATERIALS:
Granite.

ROOF:
For stack room, tar and gravel on concrete slab. For main building, slate with copper flashings.

WINDOWS:
Wood frames, double-hung.

FLOORS:
Cork carpet in delivery and reading rooms. Marble in book stack room.

HEATING:
Combination direct and indirect steam.

PLUMBING:
Enameled iron fixtures.

(*Perspective and Plans on Preceding Page*)

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
California redwood, specially finished throughout.

INTERIOR WALL FINISH:
Plaster, painted.

INTERIOR DECORATIVE TREATMENT:
Walls paneled in redwood.

NUMBER OF BOOKS PROVIDED FOR:
15,000.

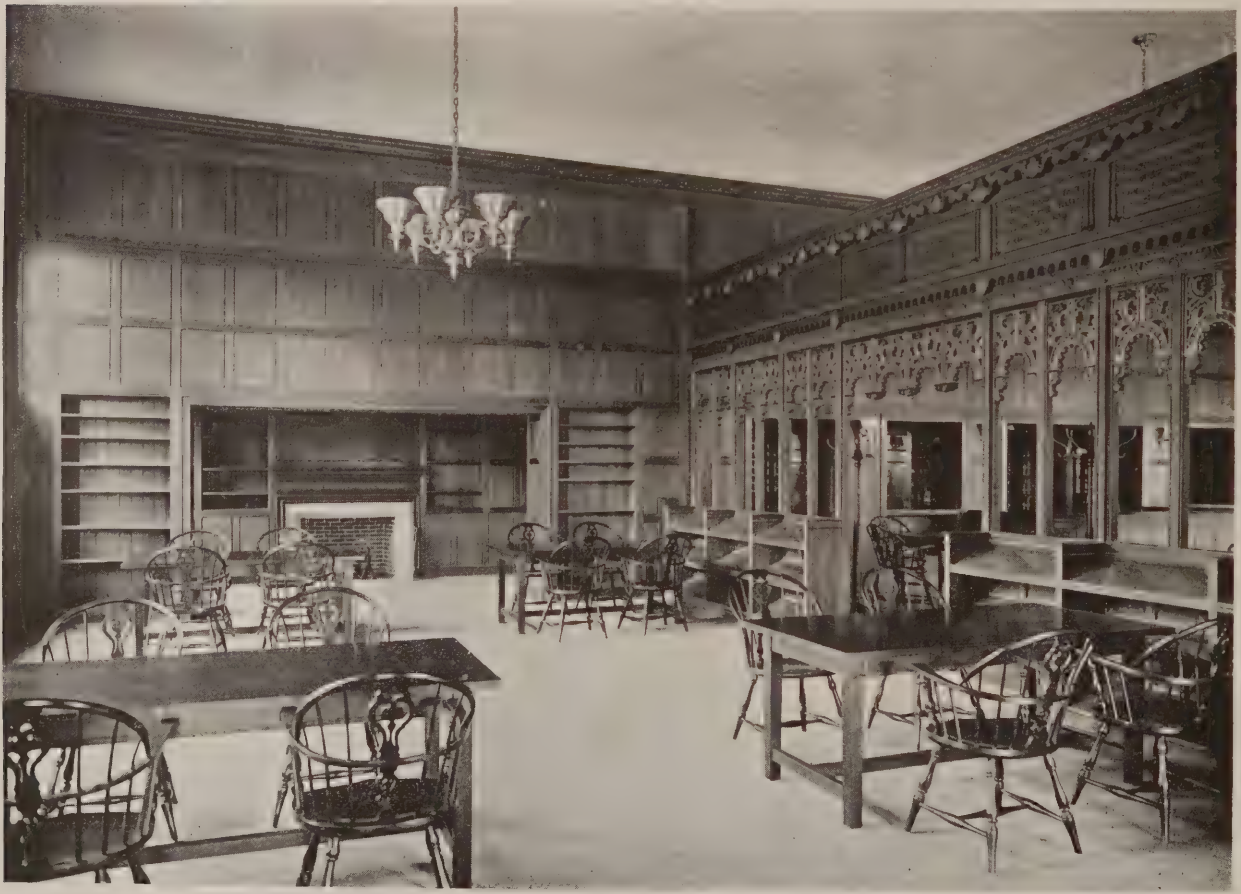
APPROXIMATE CUBIC FOOTAGE OF BUILDING:
204,000.

DATE OF COMPLETION:
June, 1912.

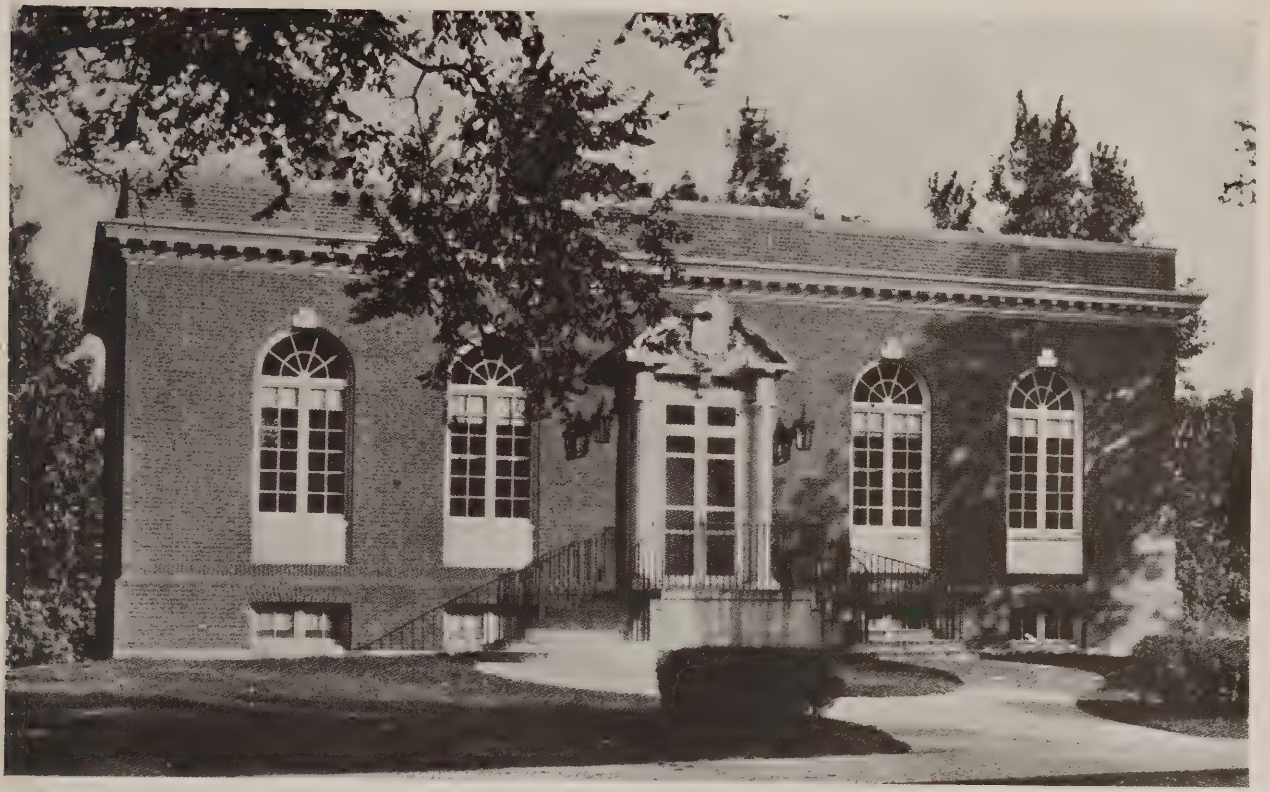
COMPLETED COST PER CUBIC FOOT:
27¼ cents, exclusive of furniture and architect's commission.

tural details of the exterior design, as well as the well proportioned small paned windows, suggest the Colonial style. A very simple wood cornice with modillions used to decorate the pediments of the entrance and end bays, and the graceful, octagonal cupola, carried out in Colonial details, are the chief decorative features of the highly architectural design.

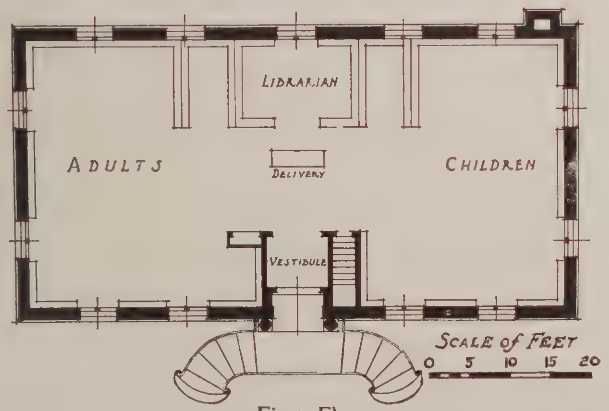
The well balanced plan shows a general reading room and children's reading room flanking the center delivery room, in the middle of the rear wall of which is located the delivery desk, connecting directly with the book stack room which is placed in the rear.



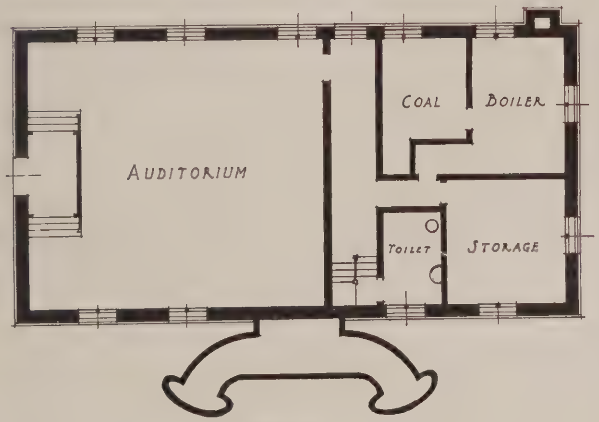
Interior of General Reading Room, Immediately After Completion



PUBLIC LIBRARY, SHARON, MASS.
C. HOWARD WALKER, ARCHITECT
Of the firm of Walker, Walker & Kingsbury



First Floor



Basement

ALTHOUGH this small library building at Sharon was built some 11 years ago, it is such an excellent example of its particular type, that it has been included in this selected group. Well studied and simple in design, this library shows the influence of Georgian and Colonial precedent. Built at the low cost of $9,740, exclusive of excavations, the result obtained far exceeds in architectural quality the amount of monetary outlay involved, proving that great expenditure is not needed to produce buildings of undoubted architectural merit.

The detail of the entrance door consists of engaged columns, an entablature and broken pediment, the latter richly ornamented with carved decoration showing horns of plenty, branches of laurel and a center cartouch; the double entrance steps, with simple iron railings, accentuate the stylistic character of the design.

The site in the center of the town was wisely selected, not only for location, but also for contour, as a sharp drop in the grade at the rear of the lot made it possible to place in the basement a well lighted assembly hall, having a seating capacity of 100 people. This hall, which has a separate entrance and vestibule, may also be reached from the main floor of the building by a small staircase at the right of the entrance door on the floor above. The remainder of the basement is occupied by storage room,

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET—27

Public Library, Sharon, Mass.; C. Howard Walker, Architect, of the firm of Walker, Walker & Kingsbury

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Brick veneer on wood frame.

EXTERIOR MATERIALS:
Red brick, wood trim.

ROOF:
Tar and gravel.

WINDOWS:
Wood, double-hung

FLOORS:
Oak, covered with linoleum.

PLUMBING:
In basement only.

HEATING:
Steam.

(*Perspective and Plans on Preceding Page*)

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood.

INTERIOR WALL FINISH:
Smooth plaster, painted.

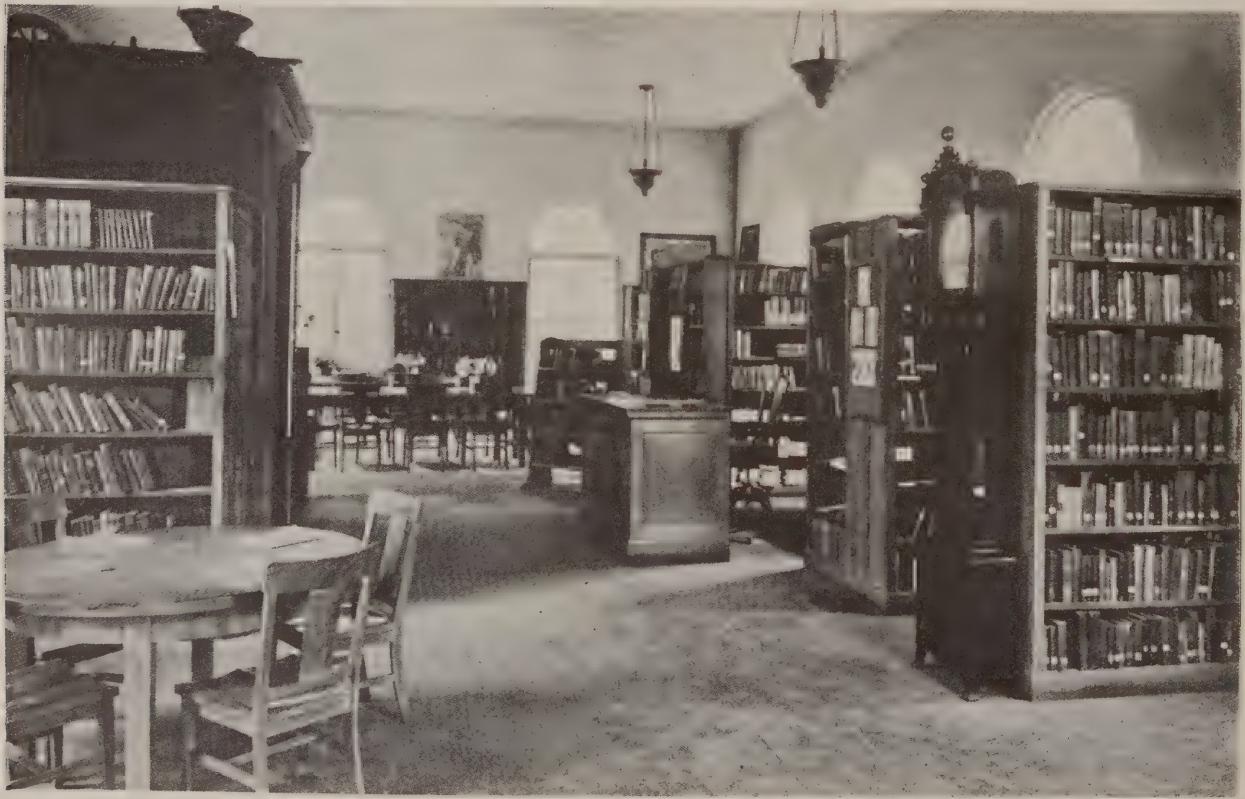
NUMBER OF BOOKS PROVIDED FOR:
Approximately 10,000.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
46,020.

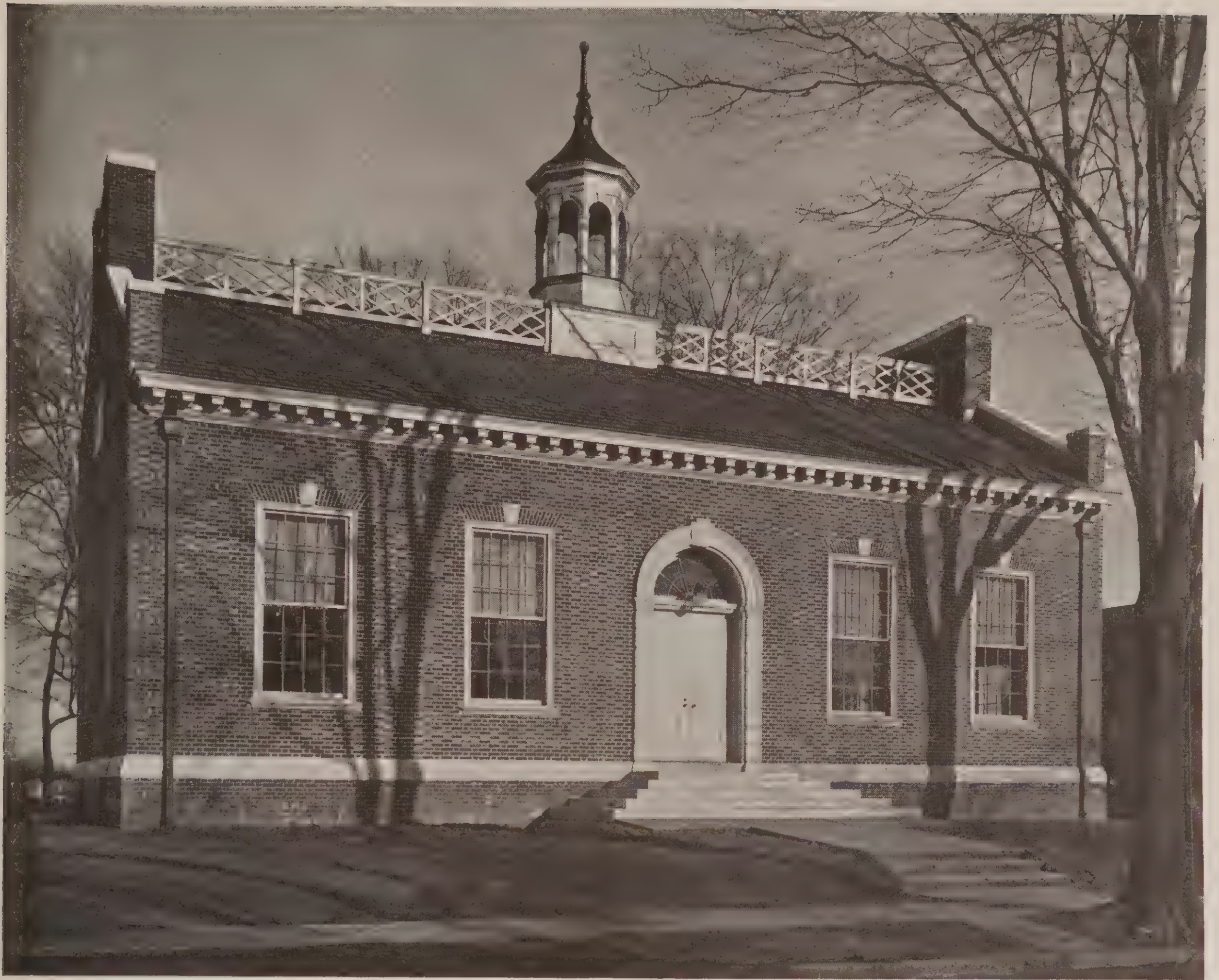
YEAR OF COMPLETION:
1914.

APPROXIMATE COST PER CUBIC FOOT:
48½ cents.

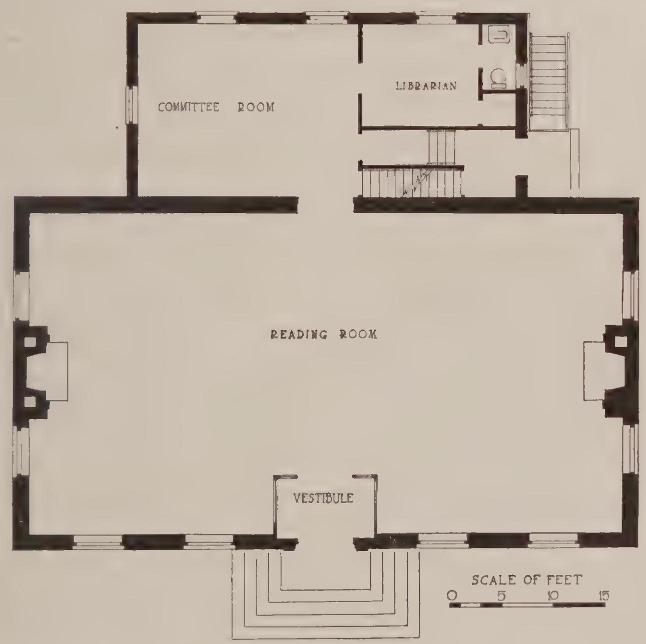
boiler and coal rooms; a toilet opens off the stair-landing. The plan of the main floor is exceedingly simple and straightforward. At the front of the building is a spacious entrance vestibule, opening into the main room which occupies the entire rectangle of the building. The book stacks, which are only seven shelves in height, are laid out in alcove arrangement. Large arched windows on all four sides provide ample daylight for every part of the room. The librarian's desk is properly located in the center of the room opposite the entrance door. From this point, every corner of the room may be under observation. One end of the room is reserved for the use of adults, while the other is devoted to children. There is a pleasant, informal, homelike atmosphere about this room, which may be judged from the illustration at the bottom of this page. In size the building is 30 feet wide by 59 feet long, with a 15-foot ceiling for the main floor and a 10-foot ceiling for the basement with its auditorium.



General Reading Room



MEMORIAL LIBRARY, BOUND BROOK, N. J.
JARDINE, HILL & MURDOCK, ARCHITECTS



Floor Plan

THIS latest example of the small library building, completed in January of this year, shows in its exterior design a pleasingly proportioned and simple adaptation of the Colonial style. Red brick and marble trim for the entrance door and wood for the other details are the materials used for the exterior design. A simple modillion cornice marks the line of the slate-covered roof, which is capped by a Colonial balustrade and small open cupola. The ends of the building are carried above the roof line in an old fashioned manner, terminating in broad end chimneys. White marble has again been used for the caps and coping of the end chimneys and walls. The four large windows in the front elevation are well proportioned and in scale with the arched entrance door, above which a fanlight, divided into small panes of glass, illuminates the vestibule within.

The plan is as simple as the exterior design, one large reading room occupying

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET—28

Memorial Library, Bound Brook, N. J.; Jardine, Hill & Murdock, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Masonry walls, wood floor joists and rafters, steel girders and roof trusses.

EXTERIOR MATERIALS:
Red brick with white marble trim, sill course and entrance steps. Wood for cornice, balustrade and cupola.

ROOF:
Graduated slate, copper flashings, gutter linings.

WINDOWS:
Wood frames, double-hung.

FLOORS:
Wood, covered with linoleum.

HEATING:
One-pipe steam, low pressure gravity return.

PLUMBING:
Cast and wrought iron pipes, enameled iron fixtures.

(*Perspective and Plans on Preceding Page*)

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
Oak, stained brown.

INTERIOR WALL FINISH:
Smooth plaster.

INTERIOR DECORATIVE TREATMENT:
Woodwork stained, walls painted.

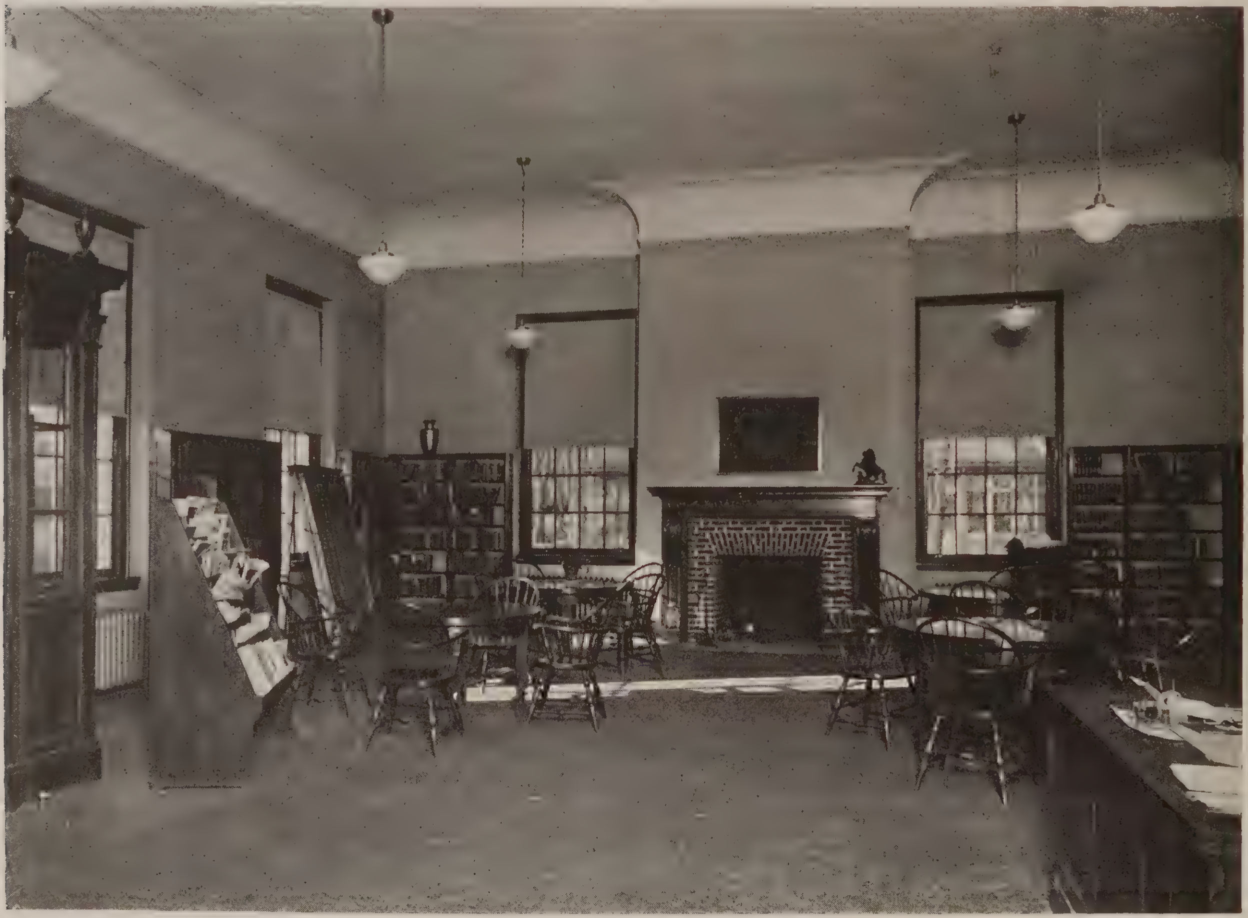
NUMBER OF BOOKS PROVIDED FOR:
6,000 in wall bookcases at present; future expansion to be taken care of in free-standing book stacks.

APPROXIMATE CUBIC FOOTAGE:
86,000.

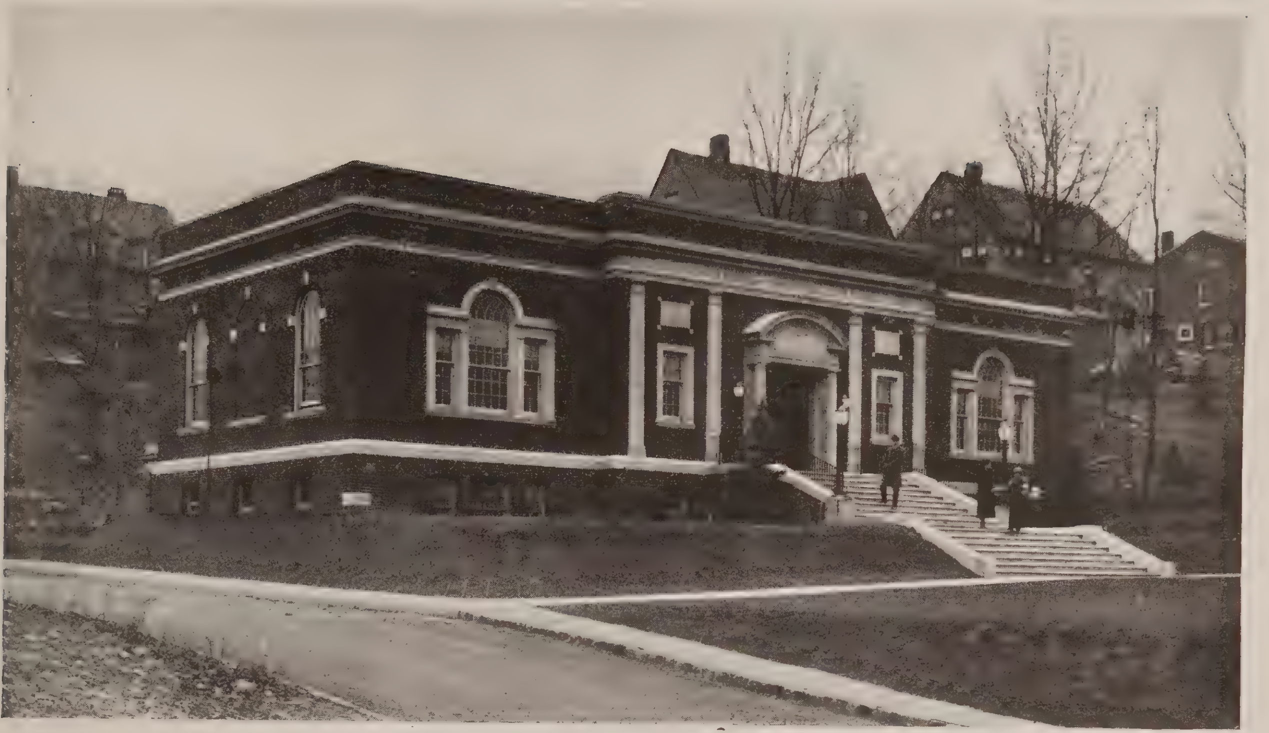
DATE OF COMPLETION:
January, 1925.

COMPLETED COST PER CUBIC FOOT:
Approximately 55 cents.

the main part of the building. The walls of this reading room are lined with high book racks which contain the entire present book collection of the library. Each end of this room has a hospitable brick-faced fireplace. The plain plaster walls are carried into the ceiling by a deep cove. At the rear of the reading room is located the librarian's room. Simplicity marks the character of all of the furnishings, including the heavy stained oak mantelpieces, with their heavily consoled supports, at either end of the room. For a simple, small town library, this little building is admirably planned and designed.



One End of General Reading Room



PEASE MEMORIAL LIBRARY, RIDGEWOOD, N. J.
HENRY BARRETT CROSBY AND ALBERT MARTEN BEDELL, ASSOCIATED ARCHITECTS

THE design of the usual small town library building calls for a plan providing two floors, a basement floor where a small lecture hall, club room, coat and toilet facilities, as well as kitchen, boiler room and receiving room are located, and a main floor where the delivery, reading and stack rooms are always placed. Such a plan is found in the Pease Memorial Library at Ridgewood, N. J. The exterior shows a simple Colonial design carried out in red brick with limestone trimmings. A well balanced center bay and entrance door reached by an imposing flight of terraced steps, are flanked on either side by well proportioned Palladian windows. The three divisions of the front facade indicate the interior plan, which shows an entrance vestibule at the front,

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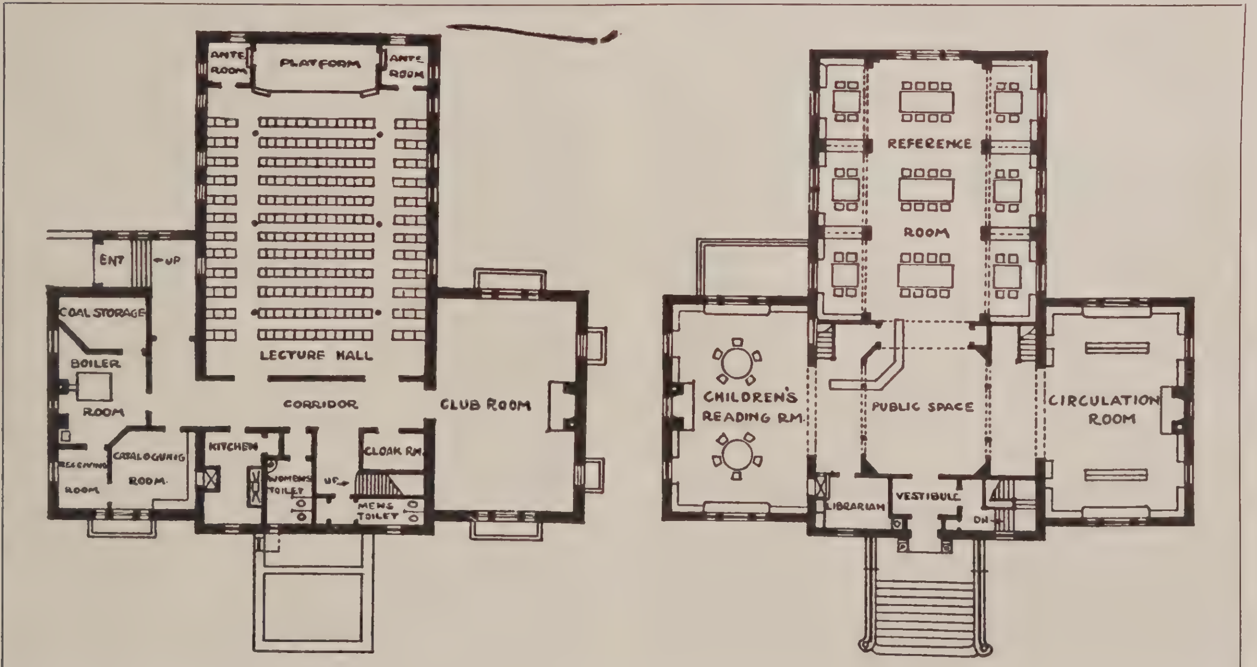


Basement

First Floor

FORUM SPECIFICATION AND DATA SHEET—29

Pease Memorial Library, Ridgewood, N. J.; Henry Barrett Crosby and Albert Marten Bedell, Associated Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Slow-burning.

EXTERIOR MATERIALS:
Brick.

ROOF:
Slag.

WINDOWS:
Wood frames, double-hung.

FLOORS:
Compressed cork over wood.

HEATING:
Vapor steam.

PLUMBING:
Enameled iron fixtures.

(*Perspective and Plans on Preceding Page*)

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
Oak, gray fumed.

INTERIOR WALL FINISH:
Plaster sand-finished, left natural.

INTERIOR DECORATIVE TREATMENT:
Gray fumed oak; rough plaster with mural paintings in entrance hall.

NUMBER OF BOOKS PROVIDED FOR:
38,000 at present, with provision for 50,000 in the future.

APPROXIMATE CUBIC FOOTAGE:
135,000.

YEAR OF COMPLETION:
1923.

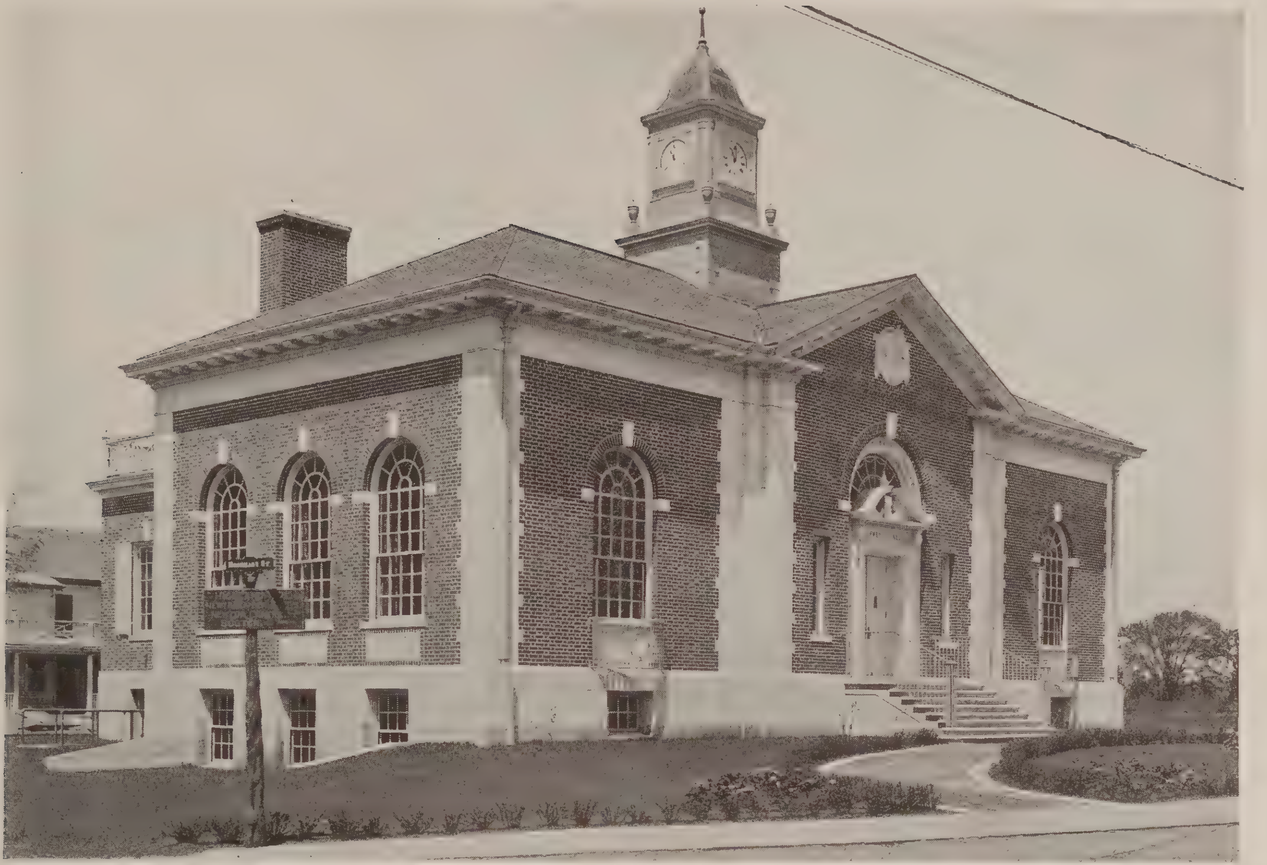
COST PER CUBIC FOOT:
66 cents.

with basement stairway on one side and librarian's room on the other. The vestibule opens into a large central delivery room or public space with a reading room for children and a circulation room located at the left and right. Beyond the delivery room is a large reference room, with six alcoves lined with book racks, and each supplied with tables and chairs. This room, as well as each of the three front rooms, is controlled from the librarian's desk, located at the left hand rear corner of the delivery room or public space, which is two stories high like the reference room and is lighted by a skylight. The mezzanine gallery, which runs along two sides of the reference room, is provided with additional book stacks and is reached by two small stairways located one in each of the rear corners of the center delivery room.

The interior treatment is simple and restful. All of the architectural features, as well as the trim, are carried out in gray fumed and quartered oak, which harmonizes well with the rough sand-finished plaster.

Reference Room from Public Space

Detail, Children's Room



PUBLIC LIBRARY, NEEDHAM, MASS.
RITCHIE, PARSONS & TAYLOR, ARCHITECTS

AMONG the successful small library buildings completed within the last ten years, is this Colonial example, showing a main building with rear wing. The exterior design is carried out in red brick, with white marble trimmings, for the foundation, corner quoins, entablature and key-blocks. The entrance door and cornice are made of wood. The details of the entrance door, cornice and small clock tower show a consistent use of Colonial inspiration. The arched windows are in pleasing proportion in relation to the wall spaces they occupy, showing careful study of the exterior design. The interior shows the successful adaptation of Colonial

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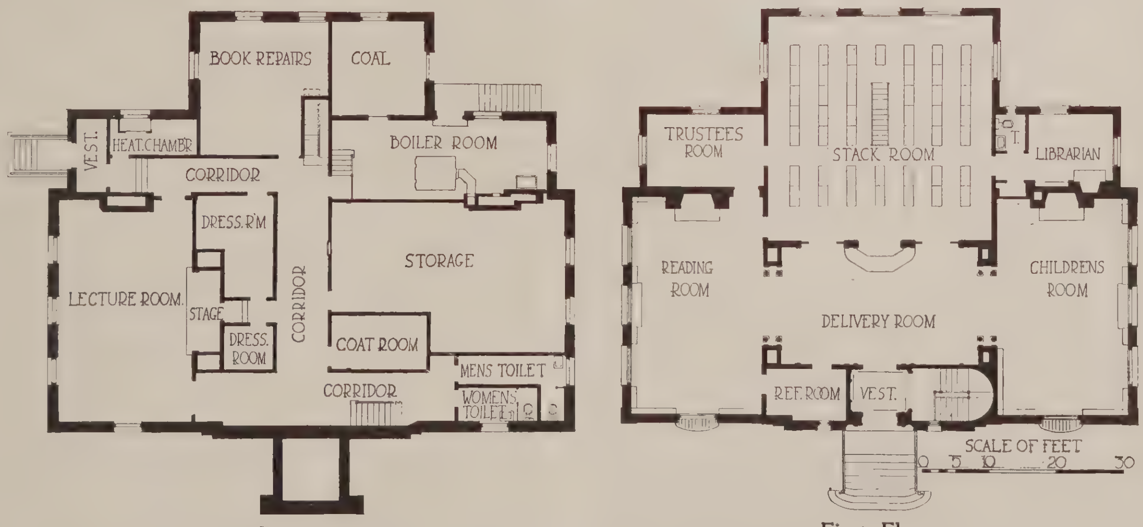


Basement **First Floor**

FORUM SPECIFICATION AND DATA SHEET—30

Public Library Needham, Mass.; Ritchie, Parsons & Taylor, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Slow-burning.

EXTERIOR MATERIALS:
Brick, marble and wood.

ROOF:
Slate.

WINDOWS:
Wood frames, double-hung.

FLOORS:
Wood.

HEATING:
Steam, gravity system.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

(*Perspective and Plans on Preceding Page*)

INTERIOR MILL WORK:
White wood, painted.

INTERIOR WALL FINISH:
Smooth plaster, painted.

INTERIOR DECORATIVE TREATMENT:
Ornamental plaster cornices and wall decorations, combined with wood columns, pilasters and piers.

NUMBER OF BOOKS PROVIDED FOR:
22,000.

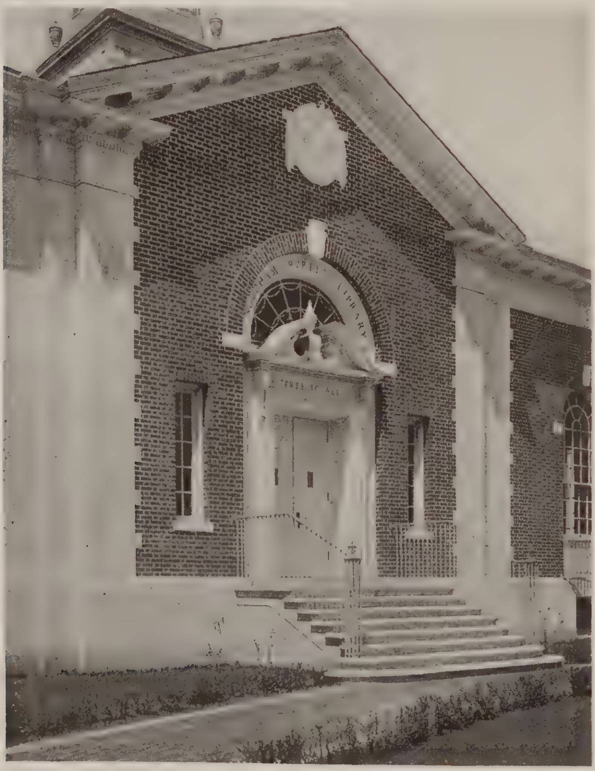
APPROXIMATE CUBIC FOOTAGE OF BUILDING:
129,158.

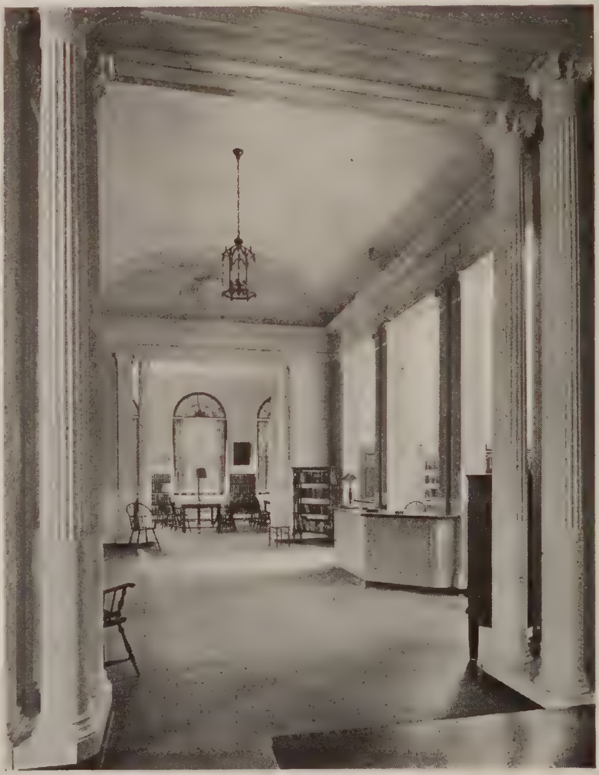
YEAR OF COMPLETION:
1916.

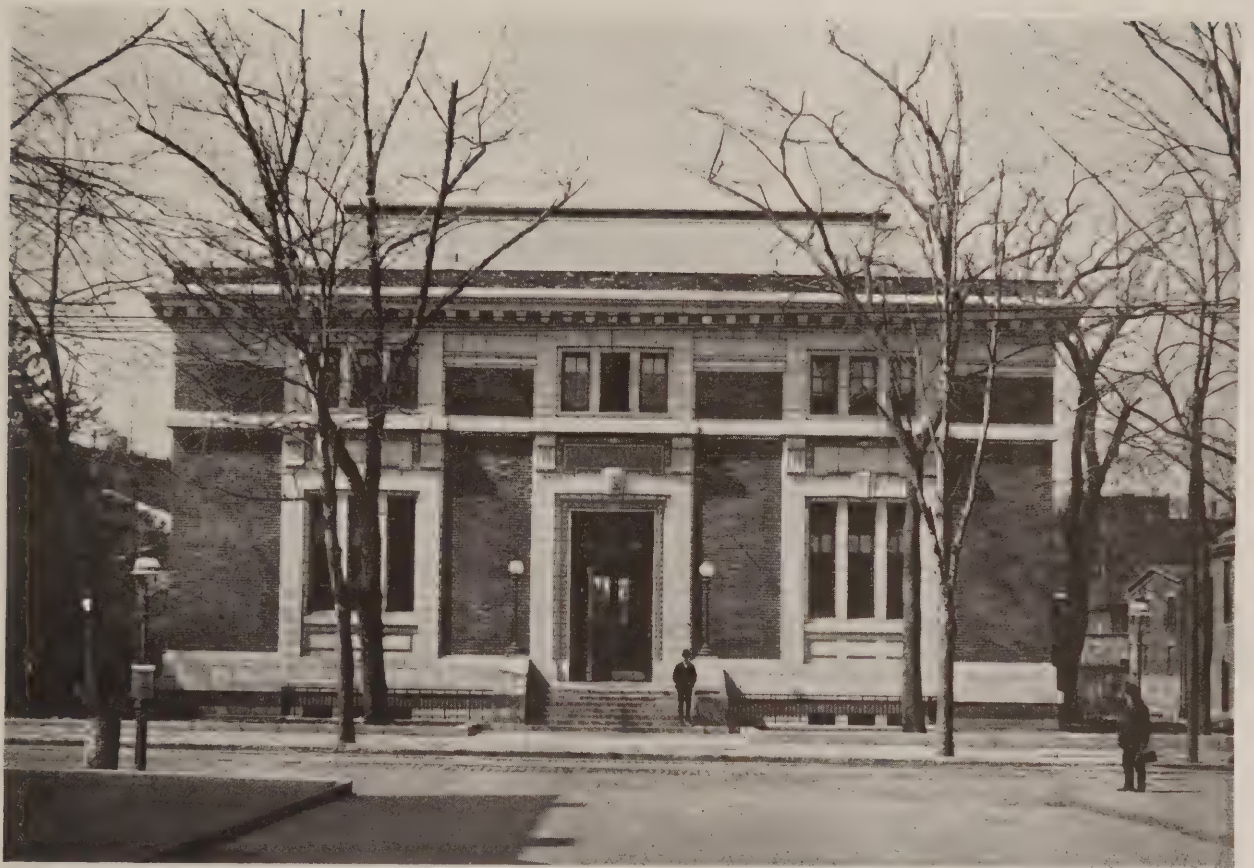
COMPLETED COST PER CUBIC FOOT:
20¼ cents.

details, in the fluted columns and piers, the typical entablature, and the low vaulted ceiling above. White paint used for the walls and architectural details of the interior produces a bright and cheerful effect.

The plan shows two floors, the basement containing a small lecture room, with stage and dressing rooms. Owing to the drop in the grade of the building plot, this room is lighted on one side by three large windows. The remainder of the basement floor is given up to boiler room, storage, a reserve stack room, coat room and toilets. The plan of the main floor shows an entrance vestibule, flanked on one side by a stairway leading to the basement, and on the other by a small reference room, beyond which is a large center delivery room flanked on one end by a reading room for children and on the other by one for adults. Directly back of the delivery room is a good sized stack room, with a trustees' room on one side and a librarian's room on the other. The plan is direct, eminently practical and well balanced.


Entrance Detail


Delivery Room



BEDFORD BRANCH, BROOKLYN PUBLIC LIBRARY
LORD & HEWLETT, ARCHITECTS

THE Bedford Branch of the Brooklyn Public Library has real architectural interest, not only in its simple French Renaissance exterior, but also in its practical and compact plan. The street facade shows a design divided into five parts by three groups of openings. The center group contains the entrance door, approached from the sidewalk by broad granite steps. The broad terra cotta base course, the entablature and enframement of the entrance door and window openings all add to the decorative character of the design. The wide string course of heavy projection pleasantly breaks the vertical wall surfaces of the facade into upper and lower panels. These panels or wall surfaces are laid up with brownish-red brick, contrasting pleasantly with the warm cream of the terra cotta. The scale of the door and window openings as well as the details gives a monumental quality to the building, appropriate to its public character; in other words, this building looks like a public library, which from the standpoint of good architecture means

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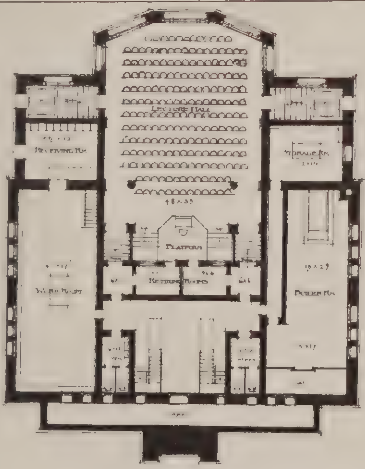
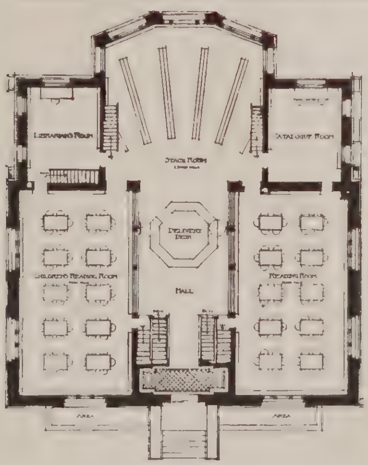
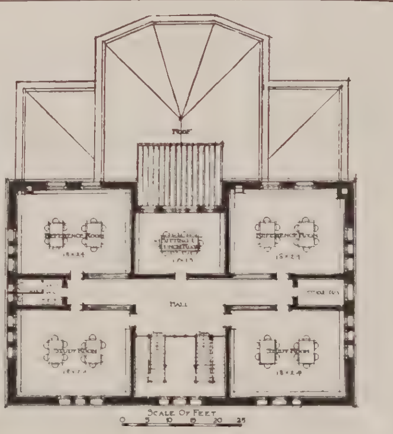


Basement



First Floor



Second Floor

FORUM SPECIFICATION AND DATA SHEET — 31

Bedford Branch, Brooklyn Public Library, Lord & Hewlett, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Fireproof; steel frame, hollow tile floors.

EXTERIOR MATERIALS:
Brick, with terra cotta trimmings.

ROOF:
Mansard, covered with copper. Flat roof, slag.

WINDOWS:
Casements, wood.

FLOORS:
Edge grain Georgia pine, with exception of entrance vestibule and delivery room.

HEATING:
Low pressure steam.

PLUMBING:
Usual type, enameled iron fixtures.
(*Perspective and Plans on Preceding Page*)

ELECTRICAL EQUIPMENT:
Lighting and vacuum cleaner.

INTERIOR MILL WORK:
Oak.

INTERIOR WALL FINISH:
Smooth plaster, marble and oak wainscoting.

INTERIOR DECORATIVE TREATMENT:
Walls, ceilings painted.

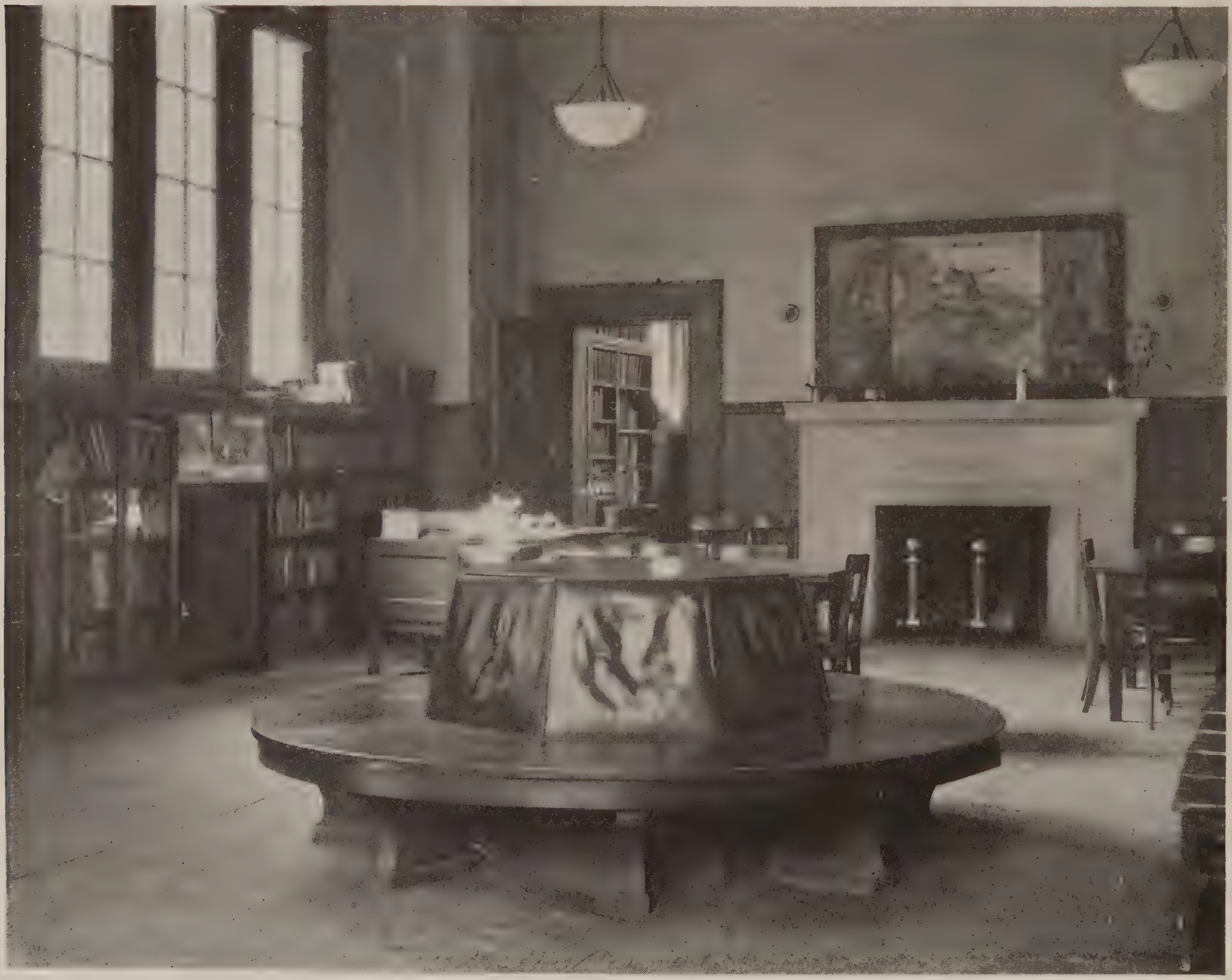
NUMBER OF BOOKS PROVIDED FOR:
30,000.

DATE OF COMPLETION:
December, 1905.

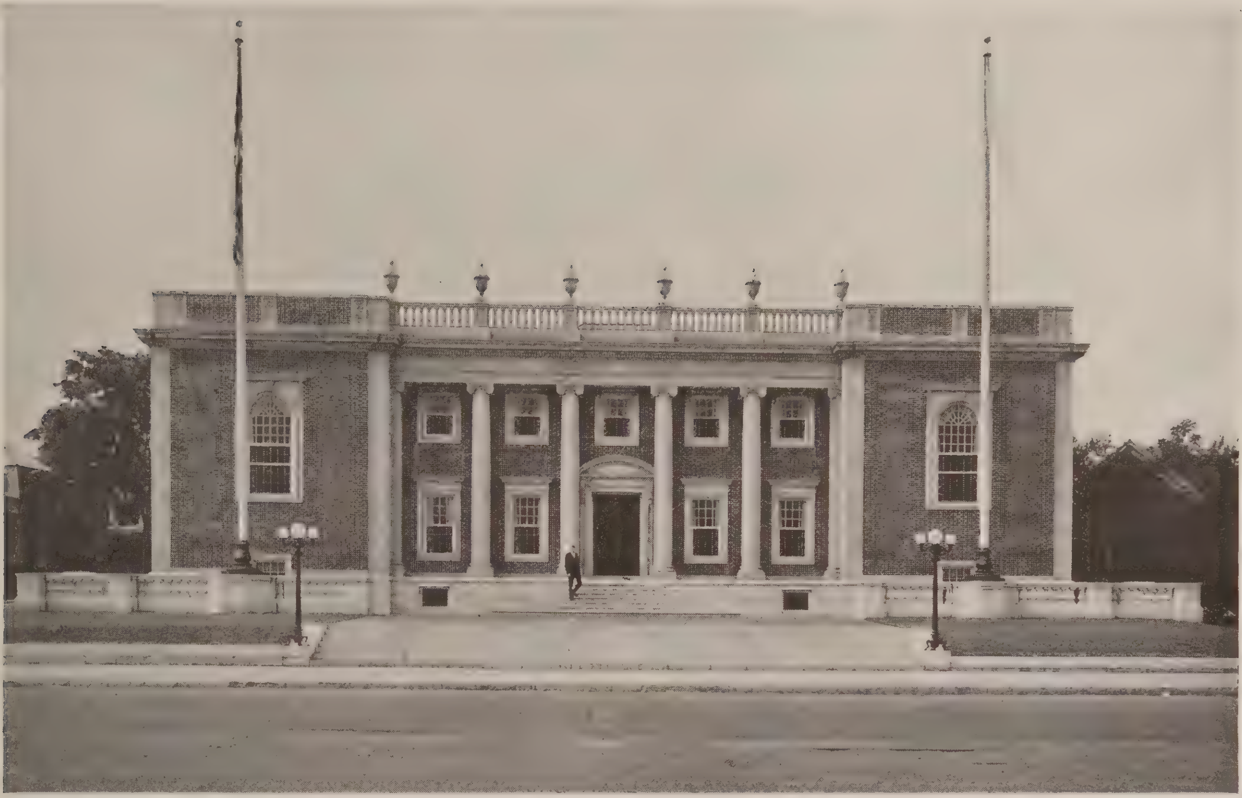
TOTAL COST OF BUILDING:
$85,500.

that the design is carefully considered and successful.

The plan shows a basement, main and second floors. By the use of deep areas on all sides of the building, adequate lighting and ventilation are procured in the basement for the small lecture hall, work room, receiving, storage and boiler rooms. Lavatories for both men and women are located off the basement entrance hall, which is reached by two stairways from the main floor. On either side of the lecture hall, wide entrances with steps lead out of doors, providing exits in case of fire. The main floor shows a well balanced plan with a center door.



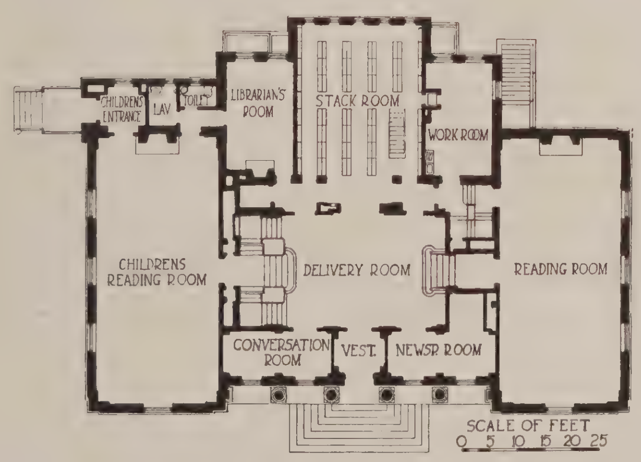
One End of Children's Reading Room



BEEBE MEMORIAL LIBRARY, WAKEFIELD, MASS.
CRAM & FERGUSON, ARCHITECTS

THIS library building, erected two years ago in the town of Wakefield, Mass., is an excellent example of a comprehensive, well balanced and plactical plan. The exterior design is carried out in the Colonial style with two end bays and a center colonnaded motif. Each bay shows a single, finely proportioned window, divided into small panes. Back of the columns in the center portion of the building, are a center door and two stories of windows, which give scale and interest to the design. A balustrade, divided by urn-topped piers, crowns and balances the arrangement of columns and wall spaces below. Parapets continue the line of this center balustrade over each of the two projecting bays of the building. Brick is used for all wall surfaces, and limestone for all of the architectural details and trim. The effectiveness of the design is greatly enhanced by the broad, low entrance steps and the terrace on which the building stands. Ornamental balustrades, with a flagpole feature introduced on each side of the terrace, follow the lines of the projecting end bays of the building itself. This design is an unusually good example of an appropriate type of architectural treatment for a monumental public building, large or small.

The plan, which is so well expressed in the front facade of the building, consists of two high studded reading rooms at the far ends of the building, and a number of smaller rooms grouped along the two-story front of the center part of the structure. The entrance vestibule, which leads directly into a monumental delivery room, is flanked by conversation and newspaper rooms. At either end of this delivery or entrance hall, steps lead up to the reading rooms. At one end these steps continue in a double staircase down to the basement level and up to the second or mezzanine floor, which surrounds the delivery room. The librarian's desk is properly located at the center of the rear wall of the delivery room, directly opposite the entrance door. Back



First Floor

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 32

Beebe Memorial Library, Wakefield, Mass.; Cram & Ferguson, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Fireproof. Steel frame, concrete floors and roof, terra cotta partitions.

EXTERIOR MATERIALS:
Harvard red brick, granite base, entrance steps and terrace balustrade; limestone trim throughout.

ROOF:
Flat, tar and gravel.

WINDOWS:
Wood, double-hung.

FLOORS:
Marble in delivery room. Cork in reading room, and composition in basement and stack room; wood in all minor rooms.

HEATING:
Steam.

(Perspective and Plans on Preceding Page)

PLUMBING:
Open enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting, vacuum cleaner and book lift.

INTERIOR MILL WORK:
White wood, painted.

INTERIOR WALL FINISH:
Smooth plaster, painted.

INTERIOR DECORATIVE TREATMENT:
Ornamental plaster pilasters, medallions and ceilings, smooth finished plaster, painted.

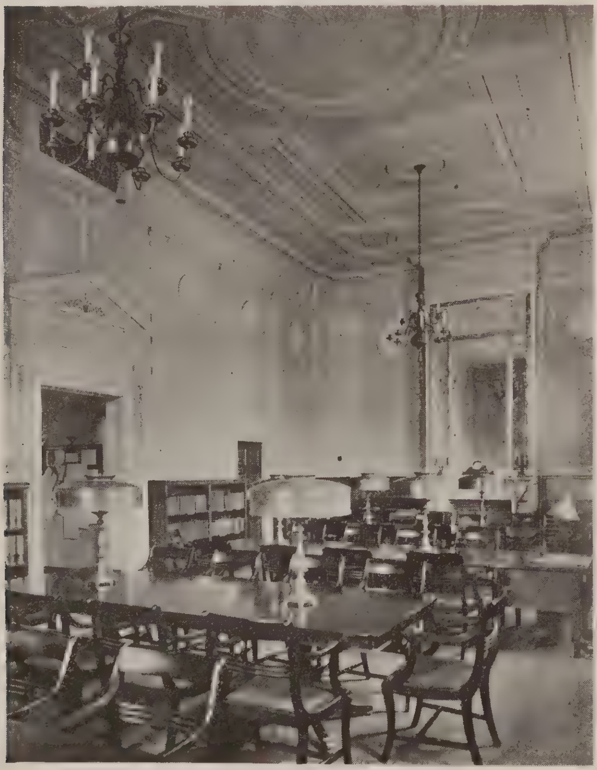
NUMBER OF BOOKS PROVIDED FOR:
34,000.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
206,000.

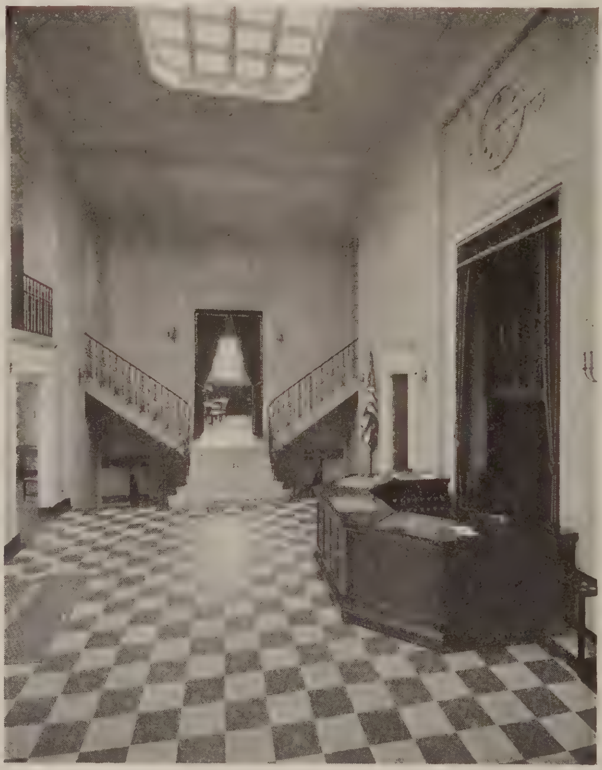
DATE OF COMPLETION:
May, 1923.

COMPLETED COST PER CUBIC FOOT:
98½ cents.

of this desk is a large opening leading directly to the stack room. This room is flanked on one side by a librarian's room and toilet, and on the other by a work room, where books may be repaired, cleaned and recovered. Between this work room and the stack room is a book lift which goes down to the receiving room in the basement. At the rear of the reading room set aside for the use of children is a side entrance and hall for their exclusive use. Each of the large rooms has a spacious fireplace at one end. In decoration the interiors have been carried out in a monumental adaptation of the Adam style of Georgian architecture. Richly ornamented door entablatures, ceilings, friezes and wall panels, all executed in plaster, painted, give dignity to the interior designs. The black and white marble floor of the entrance or delivery room, the delicately wrought iron railing of the stairways, the splendid proportions of the two large reading rooms, contribute to the monumental character of the interior.



General Reading Room



Delivery Room or Entrance Hall

INTERIOR ARCHITECTURE

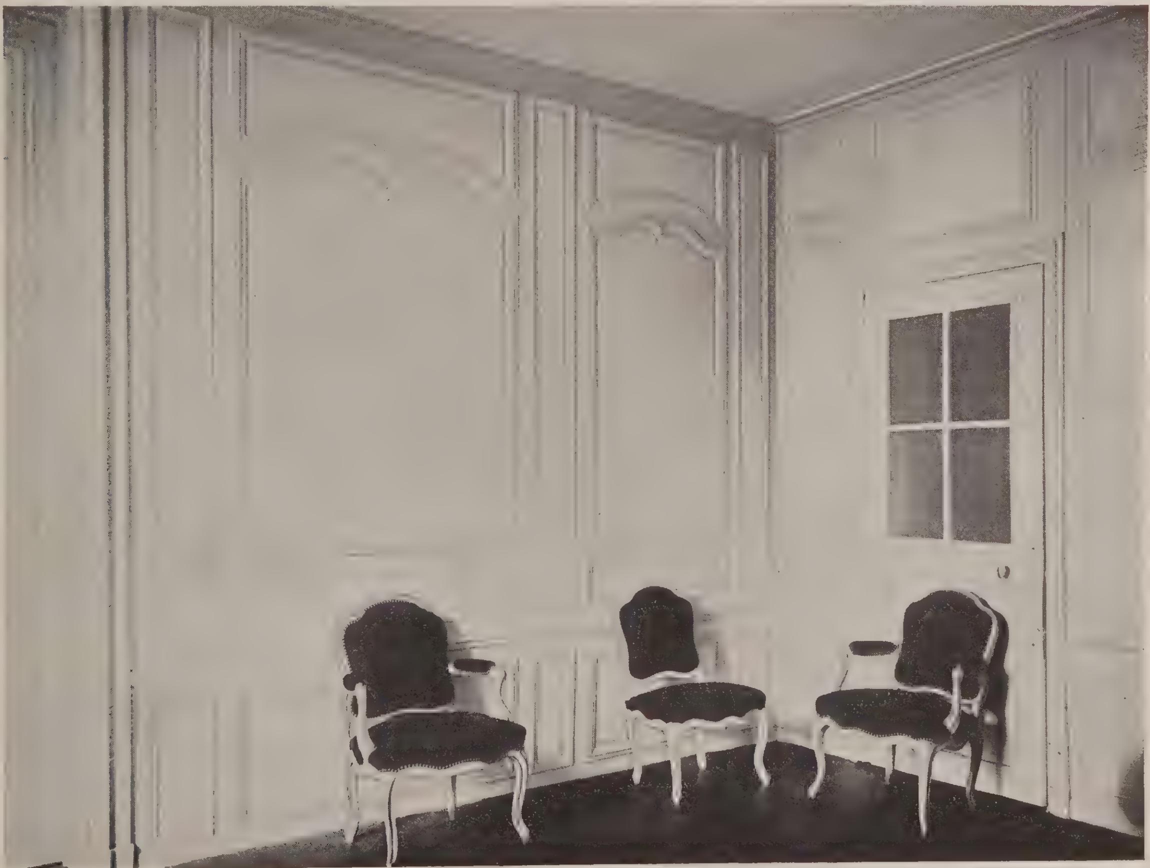
The Arsenal at Paris

By C. HAMILTON PRESTON

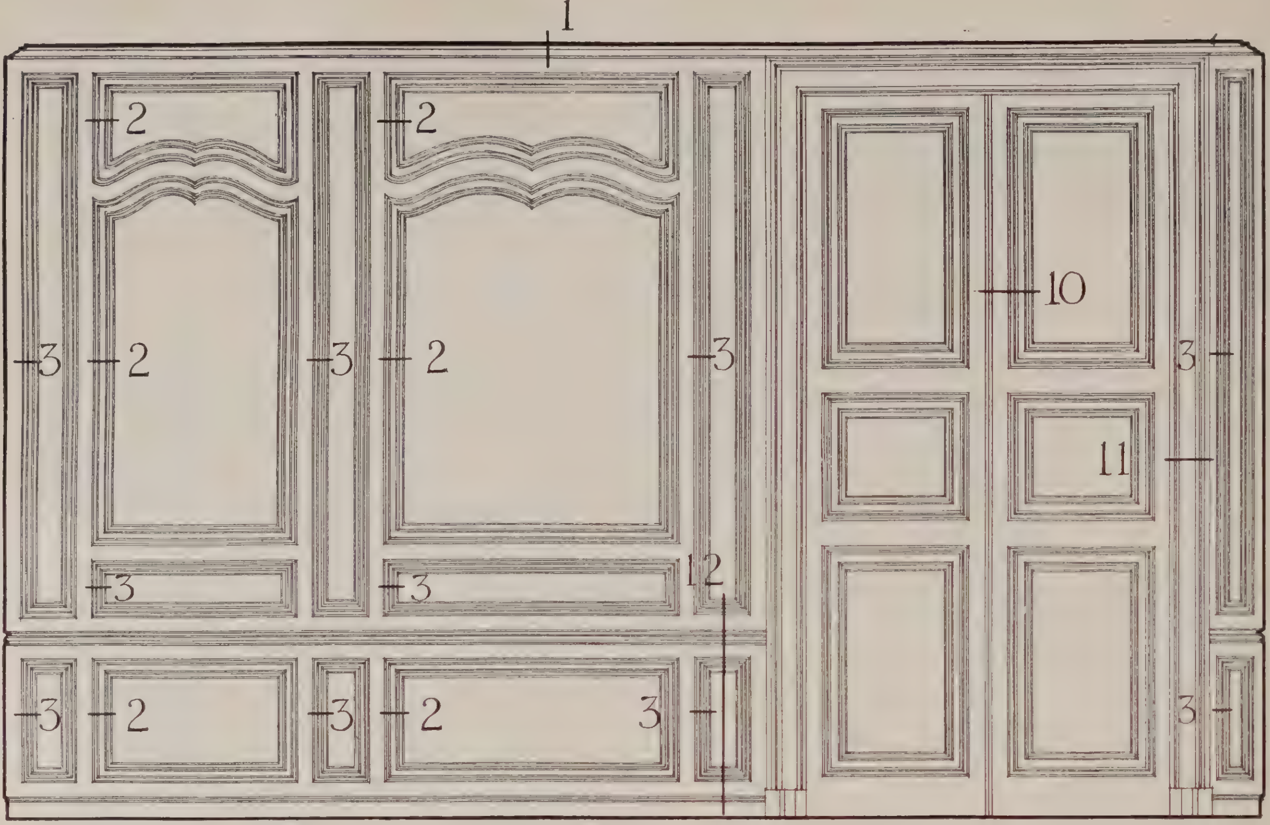
THE foundation of the building in which is found the room forming the subject of these drawings dates back to the fourteenth century. At first a relatively small building, it was enlarged by Francis I and definitely made an arsenal for arms and ammunition. Under Charles IX it was still further enlarged. Finally, under Henry IV in 1572, the Grand Master of Artillery came to take up his residence in the Arsenal, and in 1599 Maximilien de Bethune, Duc de Sully, Henry's Minister of State, was installed there in an apartment especially designed for his use. In 1637 there came into existence that very imposing suite of rooms, so gorgeously rich in ornamentation and so Italian in feeling, which have come down to our day in a perfect state of preservation and which are ever associated with the name of Sully.

In 1718 the Duc d'Orleans caused to be built, after the plans of the famous architect Boffrand, a new wing destined to become the residence of the Duc and Duchesse du Maine, the Duc being a son of Louis XIV. In this wing are found the famous *appartements* executed by Boffrand between 1725 and 1728. The most celebrated of these rooms is the so-called *Salle de Musique,* and is perhaps the masterpiece of all Boffrand's interiors.

Adjoining this room of extraordinary richness and en suite with it is a series of smaller rooms (*petits appartements*) of which the subject of our sketch is one. This little room is simplicity itself. Nothing could be more pleasing in its effect or more charming in its quiet lines, and yet it was designed by the same master who designed the intricately ornate *Salle de Musique.* This is due to the use of bold architraves for both doors and windows, the plain panels of the dado and the use of interesting curves for the major panels above, the panels being broken by double curves with stiles between, giving a very pleasing effect. Rooms of this period have often been badly reproduced and interpreted, but in this dignified little room with its simple curves we have a precedent which may well afford inspiration today.

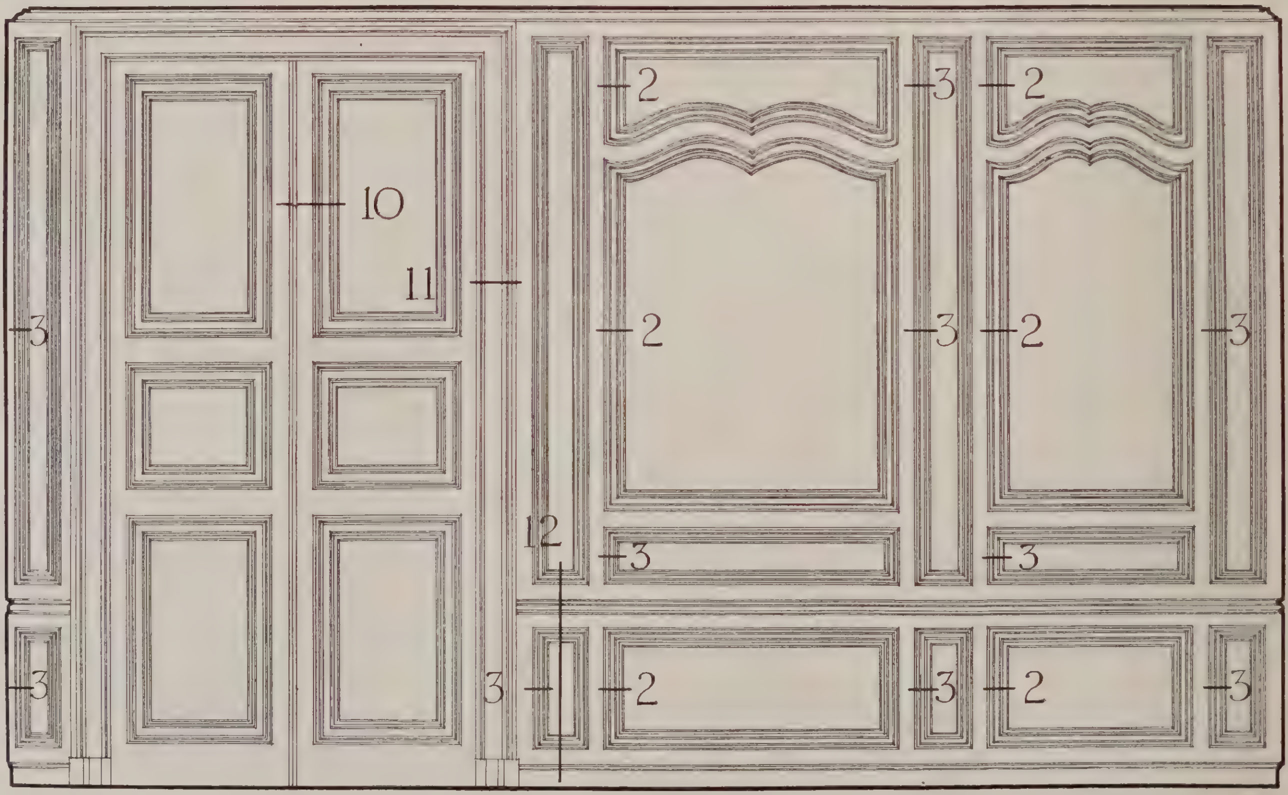


Small Salon, Arsenal at Paris, Showing Wall Paneling



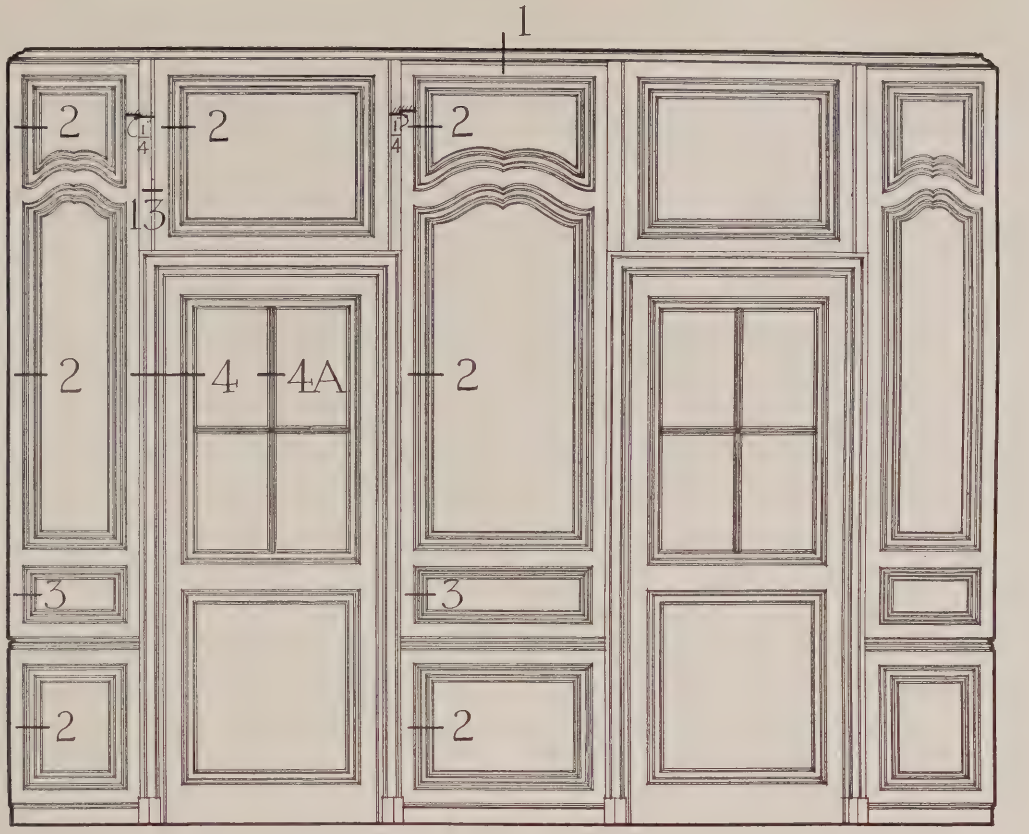
ELEVATION C ~ C

Scale $\frac{3}{8}''$ *= 1 Ft*



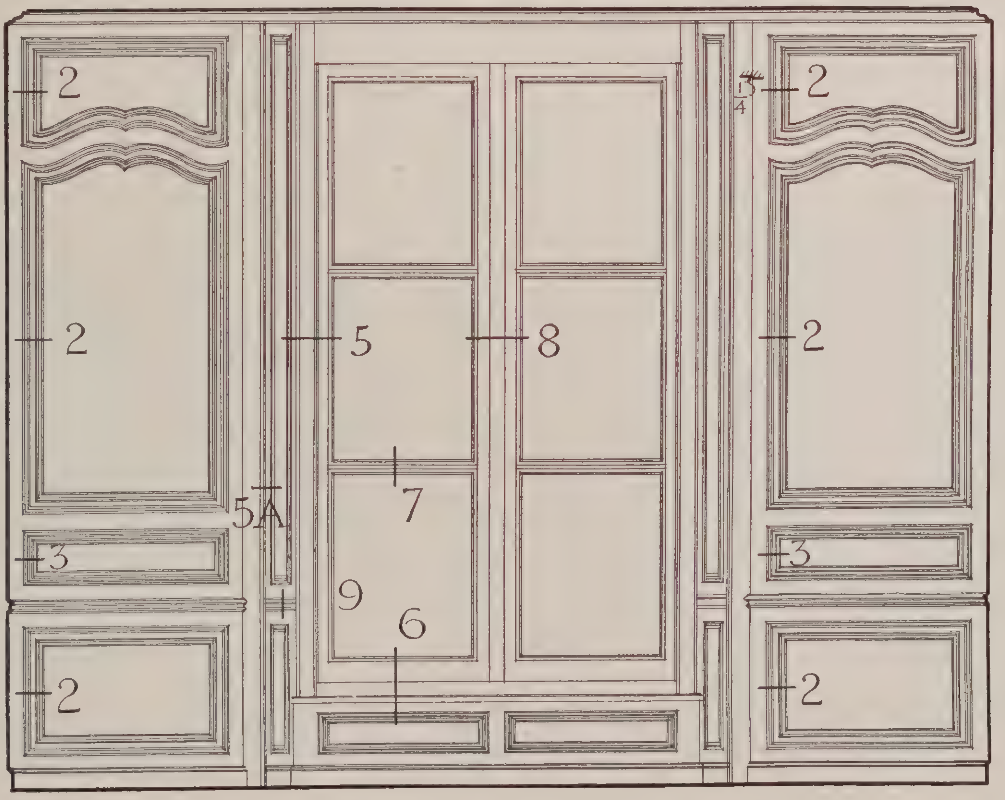
ELEVATION D ~ D

SALON
ARSENAL PARIS



ELEVATION A ~ A

Scale 3/8" = 1 Foot

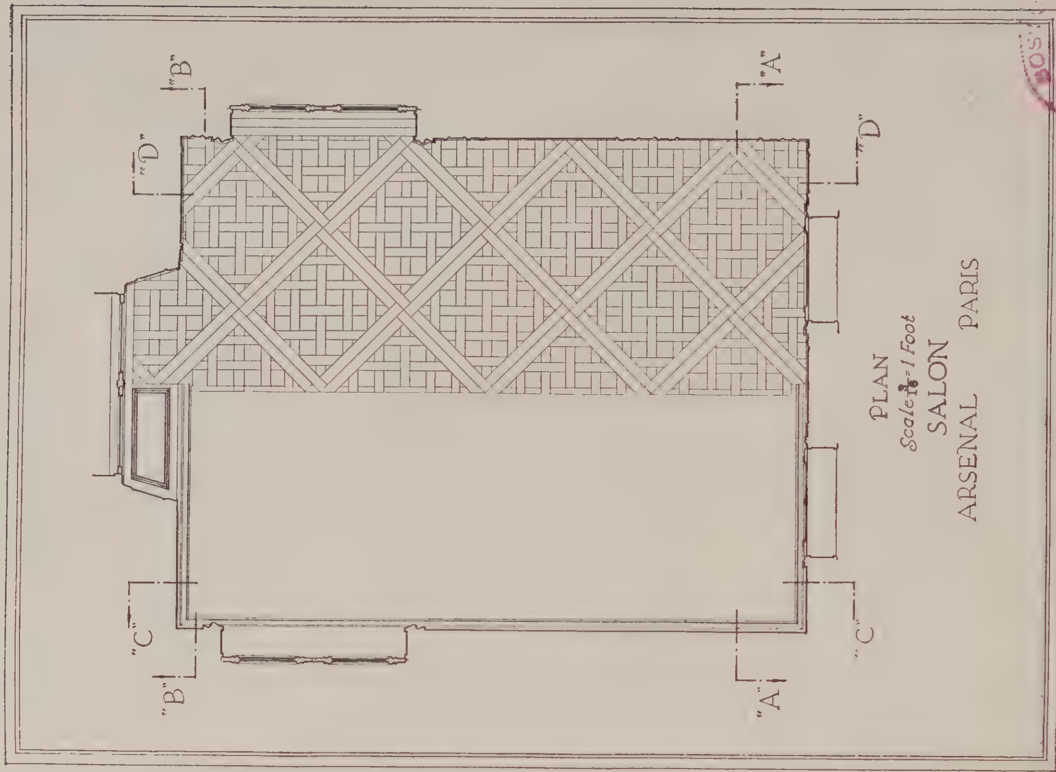


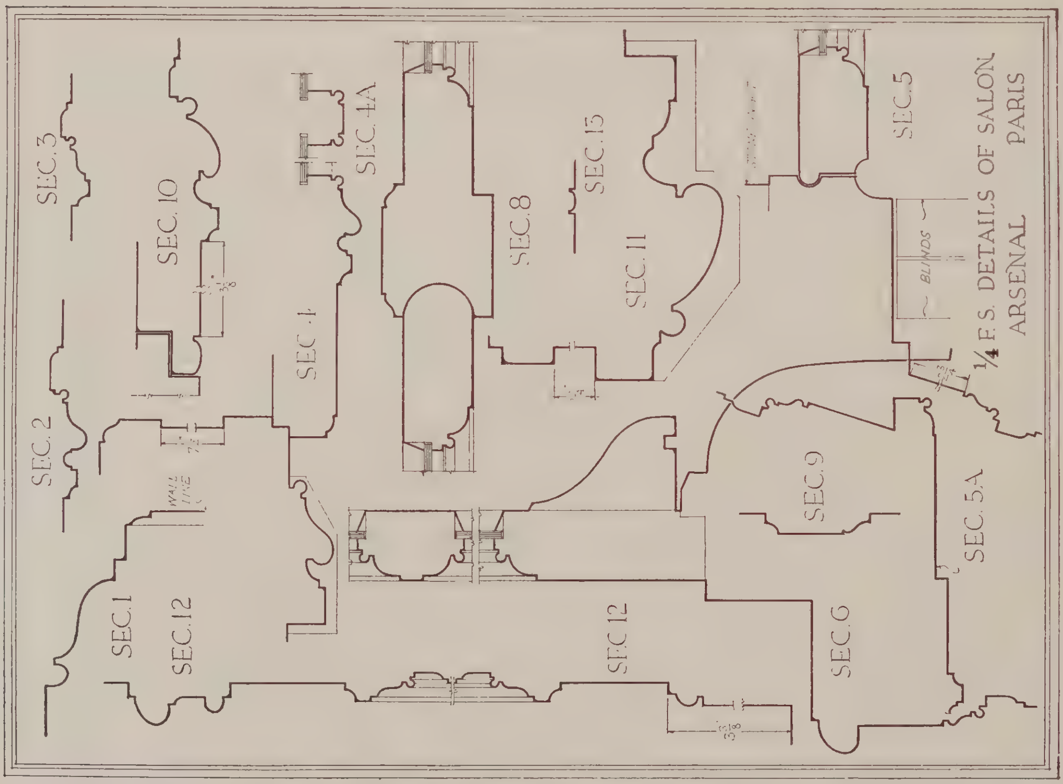
ELEVATION B ~ B

SALON

ARSENAL PARIS

BOSTON PUBLIC LIBRARY





ARSENAL, PARIS

DECORATION & FURNITURE

Some Notes on French Furniture

By PIERRE DUTEL, **Interior Decorator**

NO country has given more liberally to the cause of art and decoration than France. Her history and the life of her people and their customs are most interesting, so that it is little wonder that the study of the French styles is found to be so entertaining. Here in America I am sorry to find that the term "French furniture" is misunderstood, and that many people think all French things must be elaborate and over-ornate in design. Most of the examples that one finds in museums and the larger collections are ornate pieces, especially those of the Rococo period. Still, there are many delightful and simpler styles of French furniture that are in scale with our modern homes and which would be in keeping with the furniture of today. The Gothic and earlier types from France were heavy and massive in feeling, similar to Italian work of those times. This early furniture we will not consider, as it is not in scale with the needs of today. The furniture of the eighteenth century, beginning with the Regency period and on through to the Empire, is most delightful and interesting, so it is of this and the possibilities it offers to the modern home maker that I wish to write.

At the end of the reign of the Grand Monarch, Louis XIV, one finds that a change had taken place in building and architecture. Smaller rooms were desired instead of the large and impressive galleries that had been used. These rooms had lower ceilings, and in some cases, as at Versailles, a few of the larger salons had been divided into smaller apartments. The furniture of the Louis XIV period was found to be too heavy, so a lighter and more restrained type was introduced. The chairs were smaller, with simpler lines and lower backs; the tables were of smaller proportions and were produced by cabinet makers, such as Boulle, who was court cabinet maker during the great king's life, He now designed furniture of smaller scale but still in character with his earlier work. Cane was introduced in chair seats and backs, and finer and more naturalistic design was found in the fabrics of this period. Everything was now of a simpler character.

From the Regency to the first part of the reign of Louis XV one finds but little change. This is one of the most delightful of the French periods. It contributed some splendid examples of interior architecture, and it is here that one finds the paneling divided into smaller areas and the introduction of the curve in decoration. Scrolls and curves gave a feeling of lightness that was not found in the earlier styles of architecture or furniture design. Color was used more freely than before, and formal rooms paneled in gilt and marble gave way to smaller chambers paneled in wood and painted in colors.

In time design became very naturalistic, and later

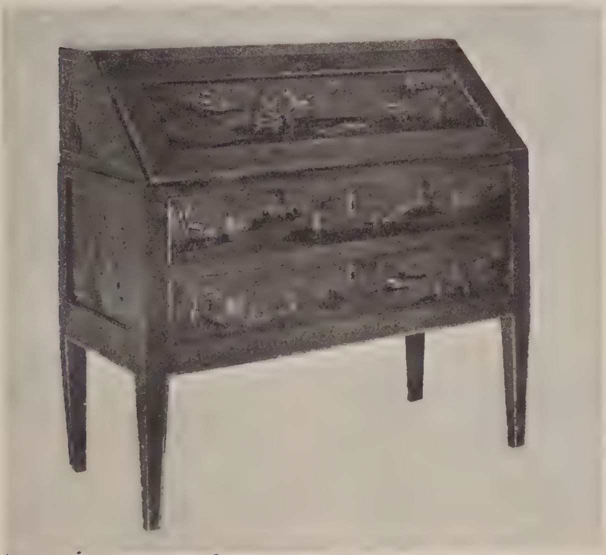


Photo. Jacques Bodart

This interesting old desk in lacquer, green and dull gold, makes a charming bit of color, such as is often found in old furniture. It is suitable for a country house on account of its simple lines and decoration, or would lend atmosphere to a library well filled with old books

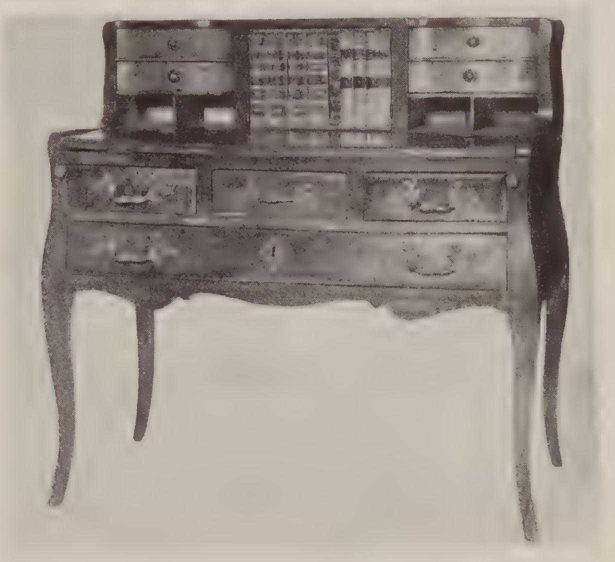
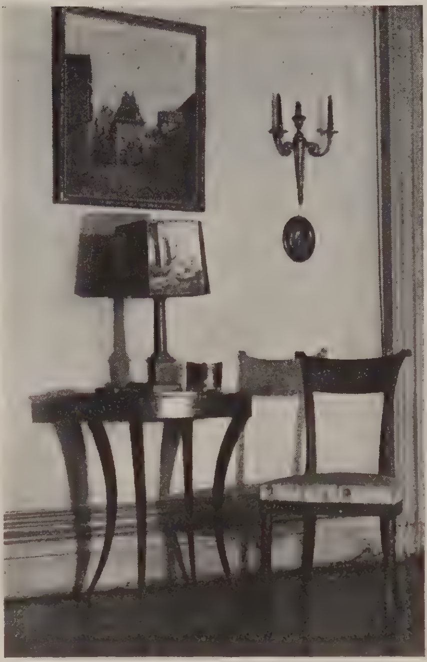


Photo. Jacques Bodart

This delightful desk in walnut has charm and grace in its flowing lines and curves. The cupboard on top is secreted by a door of old book backs, which lend color to the mellow wood. Such a piece would be an addition to a room, furnished according to almost any period it developed too much of this character. Italy was going through a theatrical age, and France was soon to follow. What Italy started in design, France finished with more finesse. In other words, this was the period of transition between the stately pomp of the time of Louis XIV and the irresponsible frivolity of that of Louis XV. At this time painted interiors and furniture became the vogue. Characters from the fables of La Fontaine and other writers were introduced into decoration, in both fabrics and wall hangings. A charming example of this is found in one of the small rooms that is in the Musee des Arts Decoratifs, and other examples are to be found in the Carnavalet Museum, near the Place des Vosges. Among the artists who created most of these exquisite examples of mural work were Huet, Fragonard and Boucher. These men, who were noted for portraiture as well as for this style of decoration, received and executed commissions by royal command for palaces and chateaux.

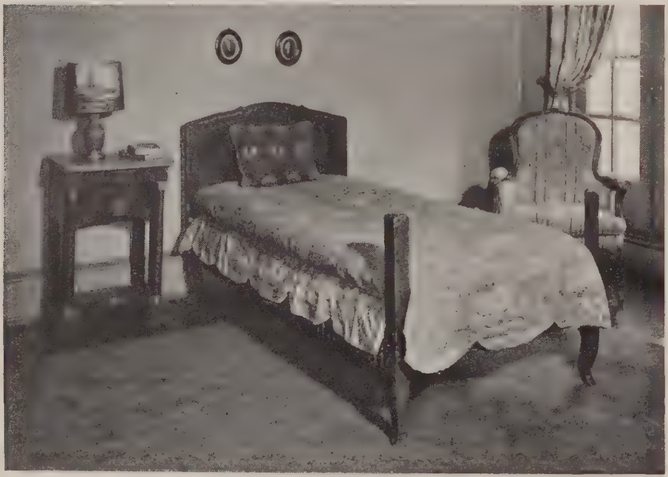

A delightful grouping of French furniture, showing Directoire table in mahogany, a transitional late Louis XVI and Directoire chair and *tole peint* lamp and print shade of interesting design and coloring

In the provinces a change also took place, so that today one may find many delightful examples of the work of French country cabinet makers, In fact at the present time there is quite a demand for this simple type of peasant furniture for both our country and town houses. The most important piece of furniture of the peasant type was the wardrobe. This and the Brittany bed were the two important items among a bride's possessions. The wardrobe was known as a *garderobe* in Provence, as a *lingere* in the southwest, and as a *corbeille de mariage* in Normandy. Some wardrobes were made in two sections, and another type which was quite large fitted against the wall at one end of a room. This was part of a bride's dowry, and if one can take the time and go off the beaten track in France there are many lovely pieces of this sort to pick up for very little money.

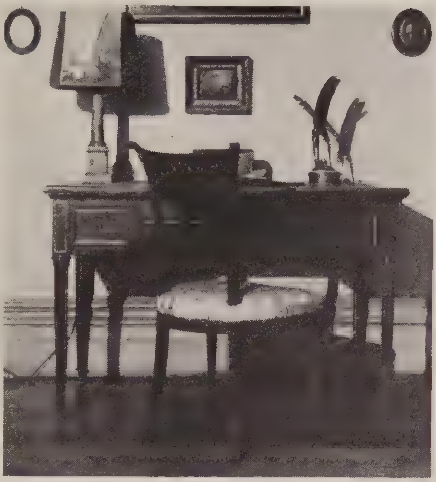
To Boulle must go the credit for the first bookcases. It was at the end of the year 1700 that the bookcase could be differentiated from the cupboard. Authentic Louis XV bookcases are rare and bring very high prices at both auction and private sales. They are quite low and wide, with marble tops and grilled doors of gilt wire. Another interesting type of cabinet or cupboard is that made to fit into a corner. Angles were shunned in the Louis XV period, so we find the invention of the corner cupboard. It was generally designed with a series of three shelves, gradually diminishing in size toward the top. A pair of these were greatly coveted and gave a *cachet* to a room. Lazare Duvaux made a number of them in painted wood and also in mahogany, all highly decorative.

Another practical piece of furniture, which was derived from the cupboard and which is equally useful today, is the cupboard-secretary. This was chiefly made of rosewood with inlay of another wood of lighter color. Then, when the craze for lacquer was at its height during the reign of Louis XV, many of these pieces were decorated with lacquer panels. Most of this work was designed and made in France, and the lacquered parts were sent to China to be painted by the orientals. Vernis Martin, a coach painter, developed at this time a style of furniture painting that was very delightful, and some charming commodes and secretaries were decorated by him and his workmen. Many still exist.

Beds of the Louis XV period are quite rare. They were generally draped and covered with damask or *toile*. In the provinces, however, one may find many charming beds that are suitable for use today in a French type of bedroom, if put in proper condition by a cabinet maker. The bed illustrated here, from Dijon, is late Louis XV, of simple character. It has carved decoration of an urn, which device being classic was much used as a decoration for the headboards of beds. This bed is


A Provincial painted wood bed, found in Dijon, which has the feeling of Louis XV design, showing carved urn decoration on the headboard. It is finished with a water stain to resemble reddish colored walnut. The night table is Empire with brass mountings and porphyry top. The old red *toile de Jouy* spread is of the period and interesting in design

finished in a water color stain which resembles mahogany, and which was much used later in many ways during the late Louis XVI and Directoire periods. The most charming pieces of French furniture were made during this latter age. From the sumptuous and ornate classicism of the court of Louis XIV we find the change to the frivolous character of the Louis XV period, and then a return to the classic spirit again. This time the scale is much finer, and furniture has more delicacy and fineness. Marie Antoinette and her court took up the simple country manner of life and delighted in the quaint and interesting villas and cottages which were designed and furnished to please her whims, with the chintzes and simple furniture that are ever a real pleasure.



This pleasing group consists of a mahogany Louis XVI writing table with brass mounts, a Directoire chair covered in an old *toile de Jouy* pattern of the period, and a tole lamp with square shade showing old French views of Paris

It is interesting to know that there were few dining room tables during the Louis XV period. One finds very little reference to rooms that were set aside exclusively for dining purposes. The Gallic or feudal custom was to eat alone, and one finds many small and interesting tables that were used at meal times. In one of the letters written by the Duchess of Orleans, she complains of the "utter boredom in eating alone." In the later eighteenth century one finds the terms *table a manger* and *table a l'Anglaise,* which were in use in the early part of the reign of Louis XVI. They were mostly round tables with large drop leaves and made to stand against the walls when they were not in use.

Between the Louis XVI and the Empire periods there was a transitional stage known as the Directoire. This lasted only a short time, but brought into use some of the purest and most perfect types of classic design in architecture and decoration. Sponsored by Mme. Recamier, Mme. Vigee-Lebrun and David the artist, tripods and other antique forms of furniture with classic motifs for decoration replaced the types of furniture and ornament used hitherto. The curve in its most slender form was developed, and everything was designed in a light and charming scale. It is no wonder that decorators and artists today are using this style of decoration so frequently, and that so many of the delightful examples of the furniture of this period are being reproduced by modern cabinet makers. Walls were draped with silks and other fabrics after antique designs. Use of wrought iron and bronze came into vogue. Ormolu and other metals were much used. The urn, which was one of the most popular ornamental details of this period, can be found in many forms of decoration. Marbles and the use of marbleized wood were much employed. A painted paper resembling marble was introduced at this time, and pieces are still found lining old commodes and dressers of the period. It gave richness at small cost.

After the influence of Napoleon was felt, furniture and decoration assumed a heavier character. Military emblems and trophies of war were used to decorate chair backs and other surfaces of furniture. The use of the tent motif was introduced in interior decoration. Stripes were extensively used for silks and other fabrics; amusing designs of balloons and parachutes as well as *carrousels,* with figures of gracefully attired ladies and gentlemen, were changed for scenes of war and views of battlefields. In the *toile de Jouy* patterns there is one delightful reproduction showing Napoleon and Josephine (after he was crowned Emperor) with the palm tree, the emblem of Italy, and the sphinx, which represented Egypt. This is in colors upon an ecru ground, and is quite gay with spots and touches of red, bright blue, green and gold. One of the most important colors of this period is a deep reddish chocolate

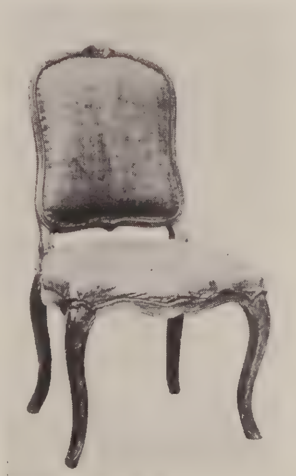


Photo. Jacques Bodart

The chairs of the early Louis XV period were graceful and simple in design, but more ornate later

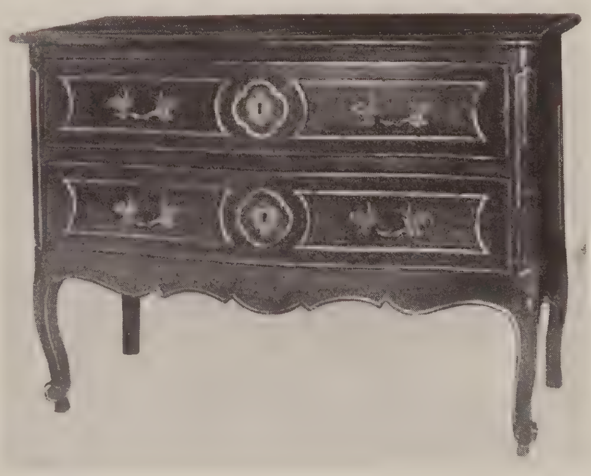


Photo. Jacques Bodart

Old country pieces have quite an appeal to the American buyer and fit well into our interiors. This bureau is painted red, with the design and mouldings picked out in gilt

Photo. Jacques Bodart

An old provincial piece in rich walnut with bronze mounts makes a charming point of interest around which may be grouped furniture in any modern or old interior

color known as "Etruscan brown." Berthaud, under the guidance of Percier and Fontaine, decorated a room for Mme. Recamier in which mahogany was used for the walls, the door frames, the doors themselves, and even the smallest article of furniture. The hangings were of red velvet, and the chair coverings were of tapestry with this Etruscan background, the effect being bold and vigorous.

There is in Paris a delightful little library I happen to know of, that belongs to this period. The walls are paneled in mahogany, and the door trim and other woodwork are also carried out in this wood. The doors are divided into elongated octagonal panels with circular panels below. The elongated panels are decorated with a set of scenes illustrating the story of Paris and Helen of Troy, done in the manner of David. Amusing birds with chalices of wine, and caskets containing jewels adorn the circular panels below. The trim of the doors is decorated with a delicate tracery, Pompeian in feeling, from which place much of the inspiration of this period was derived. The pilasters in this room are of the most delicate proportions; in fact the entire room is one of the finest examples of architecture of this period to be found in Paris.

Of course many of the older houses were left in their original styles of architecture, so although their backgrounds remained the same, their rooms were refurnished in the styles of these later periods. In planning the decorations of homes today, no special style of French architecture need be adhered to. A simply paneled room will make an excellent background to start with, or the walls may be covered with a reproduction of one of the Louis XV flock papers, or again as in a bedroom the walls may be hung in chintz or papered with one of the many interesting *toile* papers that are copied today from designs of this interesting fabric. When walls are thus papered, it is well to use for the chair coverings and draperies fabrics showing the same designs, bound with the narrow, colored tape used at the time.

The introduction of the use of flowers and growing plants was begun at this time, through the realization by Percier and Fontaine of the importance of their beauty and decorative quality. This led to the creation of charming tables made of tin and sheet iron with three and four "galleries" to hold pots and plants, and fountain basins containing fish and topped with statuettes of the classic deities. The design of desks was changed at this period. The earlier desks were mostly of the table variety, but later on, after the Louis XVI style had been introduced, we find the vertical *escritoire* which later developed into the *bureau escritoire,* or secretary, with a small compartment above divided with doors and panes of glass. Harps and spinets made of choice woods were also designed at this time. Some were decorated with pastoral scenes, but most of the later instruments were of ebony, mahogany, or else of gilt.

Photo. Jacques Bodart

During the Louis XVI period design received much inspiration from the classic, due to the influence of Monsieur de Marigny, the brother of Mme. La Marquise de Pompadour, who went to Italy and visited Pompeii and Herculaneum. In this style, known as *a la Grecque*, is this *secretaire* from the Dutuet collection which is now in the Petit Palais, so that others may enjoy its beauty, grace and fine feeling for design

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THE ARCHITECTURAL FORUM

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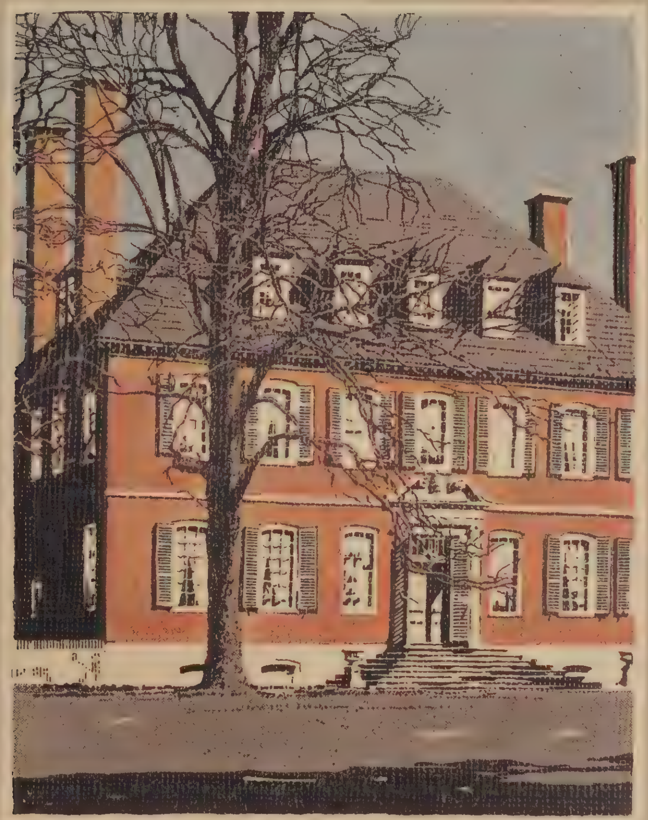

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BOOK DEPARTMENT

Westminster Abbey; Its Architecture and History

PROBABLY in no country of Europe does there exist a spot so intimately and vitally connected with a nation's history as Westminster is with that of England. Here she possesses a fane to her greatest and best; at every turn there is recalled some historical event or some famous personage; here have been crowned the long line of English monarchs, and here many of them lie entombed beneath their marble effigies. Within the walls of one small shrine, under the tattered battle flags and the matchless fan vaulting of the chapel of Henry VII, are the tombs of Mary Tudor, Elizabeth, and the Queen of Scots, rivals and enemies in life, but near neighbors now and at peace in the tranquillity and the cold majesty of death.

Westminster, moreover, presents in itself a review of the architectural history of England. Its being practically a French church on English soil is due to the fact that at the period when it was begun by Edward the Confessor, and at that later period when it was rebuilt by Henry III, French architectural influence was paramount in England, and the visitor still finds in its western front with its two square towers, and its lofty nave and choir terminating in a chevet with radiating chapels, far more that is reminiscent of Amiens, Chartres or Jumieges than of Canterbury, York, Durham, or any of the other cathedrals from which from time immemorial English bishops have governed their sees, and mostly essentially and characteristically English.

Particularly since the World War, the English people have come to regard with a deeper veneration the great monuments, historical and architectural, which mark epochs in English life. Perhaps the sight of the gaunt and mutilated remains of glorious Rheims, the coronation place of the Kings of France, has stirred the English to a deeper appreciation of their own heritage; perhaps, too, the reports of the condition of certain English cathedrals which are tottering, if not actually at the point of collapse, menaced not by an enemy's shells, but by atmospheric conditions or the damage done by excavations for subways, have been the cause of a general increase in the pride with which the English regard whatever concerns their national history. Whatever the cause, there has been established within the past 16 years the Royal Commission on Historical Monuments, part of its activities consisting of the publication of surveys or inventories of the chief historical monuments of England, one of its three large volumes on London dealing with Westminster Abbey. The work is in part historical and in part it deals with the Abbey's architecture, and in the inventory there are listed the monuments, effigies, brasses and other treasures which contribute so largely to its interest and render it so architecturally important.

The volume goes with admirable thoroughness into its subject matter. In addition to giving sufficient of the Abbey's history to make its architecture readily understood, it contains countless half-tone illustrations (and in many instances drawings as well) of details of its architecture; contours or profiles of mouldings; carvings of wood such as shrines and canopies over choir stalls; decorative soffits and screens, sculpture in stone or marble, such as tombs, effigies, cenotaphs, tablets and altars, or of sculpture that is part of the building itself, such as bosses, niches, statues singly or in groups, bases and capitals of piers or columns; brasses which are parts of floors or which are set into walls; treasures of glass, much of it belonging to the best periods of glass staining and painting, and all this, not only of the Abbey proper, for as part of its precincts there are all the accessory buildings, such as chapter house, deanery, cloisters, frater, choir school and other structures which, grouped together in the heart of London, represent what was a monastic establishment from its foundation until in the sixteenth century the religious orders were suppressed.

Aside from its historical importance, the work possesses a high value for the architect. The volume is therefore important to the architect as well as to the historian and antiquarian, for it is probably the most complete work yet published on Westminster Abbey and its art.

HISTORICAL MONUMENTS IN LONDON. Volume 1, Westminster Abbey, Text and 220 Plates. Price 21s. Issued by the Royal Commission on Historical Monuments. Published and Sold by His Majesty's Stationery Office, London.

Books Reviewed

London Alleys, Byways and Courts. *By Alan Stapleton. $5. Dodd, Mead & Co.*

Greek Life and Thought. *By La Rue Van Hook. $2.50. Columbia University Press.*

Italic Hut Urns and Hut Urn Cemeteries. *By W. R. Bryan. $2.50. American Academy in Rome.*

Terra Cotta of the Italian Renaissance. *$3. National Terra Cotta Society.*

Architecture of John Russell Pope. *Parts I and II. $7.50 each part. William Helburn, Inc.*

Manual of Office Practice. *By Frederick J. Adams.*

Architectural and Decorative Drawings. *By Bertram Grosvenor Goodhue.*

Masters in Architecture. *By H. V. Lanchester and C. H. Reilly.*

The Pleasures of Architecture. *By C. and A. Williams-Ellis.*

Bookplate Annual for 1925. *By Alfred Fowler.*

Garden City Houses and Interior Details.

Spanish Gardens and Patios. *By Mildred Stapley Byne and Arthur Byne.*

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM

French Farm Houses, Small Chateaux and Country Churches

By Antonio di Nardo
With Preface by Paul P. Cret

THE buildings of no country offer more in the way of inspiration for present-day architects than those of France. French towns and villages are filled with fine old houses and shop buildings, and the countryside abounds in farmhouses, farm structures singly or in groups, manor houses large or small, and the rural churches and wayside shrines which are among the most beautiful buildings of their kind in the world. All these structures by reason of their direct and practical designing supply the best possible precedent for modern work.

This volume contains more than 300 half-tone illustrations of buildings of this character, and in many instances illustrations of details are given, with drawings showing the bonding of brick or the arrangement of half-timber construction. *The work would be worth many times its cost to any architect interested in the design of domestic buildings and small churches.*

176 pages, 12 x 16 ins.
Price $18 net

ROGERS & MANSON COMPANY
383 MADISON AVENUE NEW YORK

A MANUAL OF OFFICE PRACTICE FOR THE ARCHITECTURAL WORKER. By Frederick J. Adams, A. I. A., 96 pp., 5 x 7½ ins. Price $1.25. Charles Scribner's Sons, New York.

ARCHITECTURAL practice, individually or as a firm, as at present constituted might be regarded as a business as well as a profession. Still regarded, it is true, by the public at large as a professional man, the architect by the very nature of his activities in the modern world must maintain a business organization which may develop, and often does, into a staff of considerable size. For example, there are the individuals, partners in the firm, perhaps, or important members of the staff, who are responsible for the securing of commissions, often pioneering into new fields and likely to maintain considerable contact with sources of financial aid, of which the firm's clients frequently have need. Next there are those responsible for designing and planning,—for maintaining, perhaps, the firm's prestige as designers while creating plans which shall give the absolute utmost in service or revenue. Highly important are the members of the staff, often trained engineers, who are concerned with actual construction; those equally important individuals who are concerned with receiving bids and letting contracts and supervision of construction, and finally there are the draftsmen, business managers, clerks, correspondents and the host of others whose salaries sometimes swell the office payroll to unheard-of figures. Moreover, this organization cannot always, without grave injury, be reduced in size when there is but little work in the office; with each individual a specialist in his field and perhaps difficult to replace, such an organization must be maintained almost intact unless its value is to be lost.

To preside over this highly complex organization is the function of the architect himself, who must coördinate the work of all these departments, his skill and resource as a designer perhaps being no more necessary than possession of ability as a business getter or a business executive. Often his ability lies in one direction rather than in another, and perhaps for this reason there have been many successful firms composed of two or perhaps several architects, each of whom has confined his efforts to the field in which he felt himself best equipped to work.

In this volume Mr. Adams, long and widely known for his successful administration of an important department in the offices of McKim, Mead & White, gives "a concise tabulation of instructions covering the routine of an architectural office for the information of the workers therein and all others having to do with building construction." The work has been revised and enlarged from the version by the same author for use in his firm's offices. It would be difficult indeed to imagine a treatise which covers its subject more completely, and were it studied by most architects and all architects' assistants there would be far less friction in the work of architects' offices;—and it might be studied with profit by building contractors as well.

In addition to general chapters on the functioning of an architectural office as a whole, Mr. Adams devotes special sections to the study of the drafting sections, construction and field sections, and other chapters to the work of an architects' organization as applied to buildings of specific types, such as hotels, while to add to the helpfulness of the book complete checking lists are included, and forms used for various purposes are given.

A BOOK OF ARCHITECTURAL AND DECORATIVE DRAWINGS. By Bertram Grosvenor Goodhue. Second Printing, 1924. Price $15. Architectural Book Publishing Co., New York.

PRACTICE of architecture often involves great skill in the various arts which enter into it. Many architects in the past have been perhaps quite as notable as painters or sculptors as architects, while owing to the highly important part it plays in architecture, drawing or sketching is necessary to its practice, and often it develops a character which ceases to be primarily architectural. Few modern architects have been gifted with quite the degree of skill which rendered so notable the work of the late Mr. Goodhue. His unerring taste in composition was either the result or cause of his great skill in sketching. Whether he were designing a group of buildings to be developed in stone or brick, or sketching some walled hill town in a forgotten part of France, Spain or Germany, his taste and judgment disposed the parts of the picture in a way which created airy grace and fantastic loveliness combined with solidity of structure which rendered the composition both logical and convincing. This is especially true of his churches.

This volume is a reprint of that issued some years ago, and its reappearance is no doubt due to the interest in his work which has followed Mr. Goodhue's death last spring. The work, carefully edited and beautifully produced, should be well studied by architects and draftsmen and indeed by anyone to whom composition and technique are of value in designing or illustrating.

MASTERS IN ARCHITECTURE. Fischer Von Erlach, by H. V. Lanchester; McKim, Mead and White, by C. H. Reilly. Each volume consisting of text and about 36 plates, 7 x 10 inches. Price $2.50. Charles Scribner's Sons, New York.

THE series of monographs dealing with the work of great architects or architectural firms which is being published under the general editorship of Stanley C. Ramsey is enlarged by the addition of these two volumes. The fact that Von Erlach was contemporary with Sir Christopher Wren will suggest a comparison between the work of the two men, each a master architect, the one being the creator of work of outstanding significance in Vienna, while the other during his day dominated architecture in England and became the founder of a school or a tradition which is still powerful and vital after more than two centuries. Great architects both, each was master of his chosen province of architecture, and each interpreted the spirit of his environment. The qualities of the gay and vivacious Baroque architecture, in which Von Erlach excelled, express the temperament of brilliant, fun-loving Vienna, just as in St. Paul's or any other of his works, Wren expressed the acceptance of the Renaissance which prevailed in England, which resulted in a type rich and splendidly beautiful, while not for an instant ceasing to be essentially British.

As with several volumes of this series of monographs already reviewed in these pages, each of these works adds to the general understanding of architecture. The subject of one of the volumes lived in a period centuries remote from the present, while the firm which is the subject of the other monograph is now, as for many decades, in the foremost rank of American architects. Each volume presents in the illustrations and sums up in its text the work by which these names will be remembered, and each forms a valuable addition to history.

THE PLEASURES OF ARCHITECTURE. By C. and A. Williams-Ellis. 275 pp., 5½ x 8 ins. Price $3.50. The Houghton Mifflin Co., Boston and New York.

PERHAPS the low estate to which architecture fell during the nineteenth century was but one of the results which followed the decree of absolute divorce between good taste and almost everything with which good taste had to do. It was an age during which machinery came rapidly into use to take the place of the handicraft which had been developed during centuries, and with the coming of machinery there came also use of forms which lent themselves to machine production; worse still, for with the advent of machinery and the abandonment of the handicrafts there went the relinquishing of the point of view of which the handicrafts were an expression, and the rise of an entirely new philosophy and attitude toward all the arts. The devastating effects of this machine age and everything which went with it are still abundantly apparent everywhere, but the tide has turned, and good taste, together with all it involves, while by no means at yet triumphant, may at least be said to have reached a point where its star is in the ascendant.

One indication of the growing interest in good taste is found in the increased interest being shown in architecture. How often an architect or perhaps a writer on architectural subjects is asked some question which proves an interest,—sometimes an intelligent interest,—in architecture, or else is asked to suggest some work, readily accessible and written in language not too technical, which would outline a foundation or basis upon which an appreciation of architecture could be built up! Possibly the existence of such interest suggested the preparation of this work, which concerns itself with an explanation of the relations between architecture and life in general, the other arts which are more or less closely allied with architecture, and the changes that alter or modify these relations as the conditions which govern or direct them are themselves changed.

The volume does considerably more than discuss architectural theory in an academic way; it renders its excellent teaching readily grasped by citing examples both bad and good of what is being discussed. The work is so valuable that it should be commended not only to seekers after truth, but to architects themselves; it would aid in making many things more intelligently believed because more clearly and definitely understood.

THE BOOKPLATE ANNUAL FOR 1925, Edited and Sold in Limited Edition by Alfred Fowler, 816 Board of Trade Building, Kansas City. Price $5.

THE fact that architects have always been numbered among those careful and discriminating people whose books are marked by bookplates renders the study of their origin and development of particular interest. Their use is by no means recent, and many large collections, of which there are a number, contain the actual little *ex libris* labels really used by the great of past centuries to identify their volumes.

Much data regarding bookplates old and new is given in the 1925 "Annual." The work of several well known designers is studied, and Charles Over Cornelius, of the Metropolitan Museum, contributes an especially interesting essay on "The George Washington Bookplate Myth."

GARDEN CITY HOUSES AND DOMESTIC INTERIOR DETAILS. Fourth Edition, Revised and Enlarged. 112 pp., 9 x 12 ins. Price $2. The Architectural Press, 9 Queen Anne's Gate, Westminister, S. W.

THE interest which during the last few years has been developed in small houses has brought about a study of the small house architecture of every country. Among countless types of domestic building there exists none more beautiful and interesting than that of England, and to English small houses there belongs a quality which is rarely found in larger and more pretentious work. This is particularly true of some recent buildings, and the lessons they teach are needed in America.

This volume, published by a firm noted for its good taste in selection and for its excellent editorial judgment, is a study of the modern English small houses of what might be called the "Garden City" order, houses or cottages all small or of medium size and of corresponding costs, but many sufficiently beautiful and distinguished to hold their own among buildings larger and far more costly. The houses shown are built of many kinds of material, and floor plans and in many instances drawings of details increase the helpfulness of the book.

SPANISH GARDENS AND PATIOS. By Mildred Stapley Byne and Arthur Byne, 305 pp., 7½ x 11 ins. Lavishly illustrated in black and white, with several illustrations in color. Price $15 net. J. B. Lippincott Co., Philadelphia.

TO the goodly list of recent books dealing with Spanish architecture, ironwork, decoration, furniture and other departments of art in Spain, there comes a notable addition in this excellent work on Spanish gardening, a publication in book form which includes the interesting chapters which appeared during several recent months in the *Architectural Record,* containing matter valuable indeed to architects and to home owners alike.

A garden in Spain may mean much or little; the estates of Spanish royalty or Spanish grandees of course include gardens which in many cases rival those of Italy or France and very likely were based upon Italian or French precedent; but more frequently to be met, and to many vastly more charming, are the smaller gardens,—walled perhaps, or the gardens within patios or courtyards of houses which might be in either city or country. These patio gardens, indeed, owe much of their interest and charm to the close and intimate connection between architecture and gardening which is involved; the art of the gardener is strengthened by its relation with building, while to beautify a structure adorned perhaps, as houses in Spain usually are, with much in the way of ironwork, tiling and ornament in divers other forms, there is added charm given by growing things, trees and plants, and water in many forms increases the interest and beauty of the setting.

It is always a pleasure when reviewing a book dealing with domestic architecture and decoration to be able to say that it abounds in suggestions which architects in America might easily adapt, and this work is full of illustrations of gardens and patios where delightful use has been made of the simplest forms of ironwork, tiling, brick paving and wood shutters or grilles at windows and doors. The well deserved present popularity of Spanish architectural types where climate renders them appropriate should be increased and extended by the teachings and suggestions had from this excellent work.

"CHURCH BUILDING"—*By Ralph Adams Cram*

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THE improvement which has accompanied the progress of American architecture during recent years has been no more marked in any department than in that of an ecclesiastical nature. This has been due primarily to the rise of a few architects who by travel and study have acquired much of the point of view from which worked the builders of the beautiful structures which during the fourteenth century and the fifteenth were being built over all of Europe.

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THE appearance of a new and revised edition of a work which is by far the best in its field records this progress. Mr. Cram, being perhaps the leader among the architects who have led this advance, is himself the one individual best qualified to write regarding the betterment of ecclesiastical architecture. The editions of this work of 1900 and 1914, which have for some time been out of print, have now been considerably revised and much entirely new matter has been added, which in view of the change which has come over ecclesiastical building of every nature is both significant and helpful.

Illustrations used in this new edition of "Church Building" show the best of recent work—views of churches and chapels large and small, in town and country, buildings rich in material and design and others plain to the point of severity, with the sole ornament in the use of fine proportions and correct lines. Part of the work deals with the churches and their worship.

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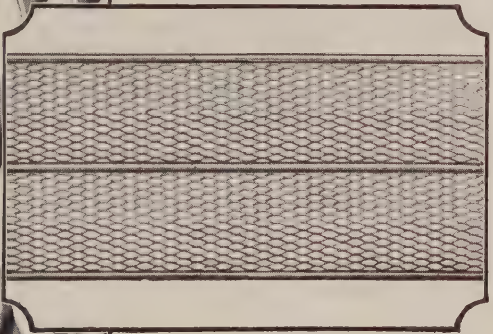

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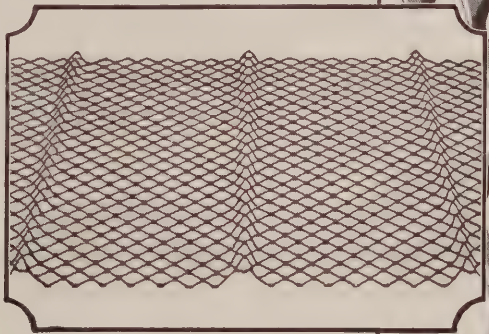

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The ARCHITECTURAL FORUM

VOLUME XLII

NUMBER 5

CONTENTS *for* MAY 1925

PLATE ILLUSTRATIONS Architect Plate

"Stillington," Gloucester, Mass. ......*Allen & Collens and Harold B. Willis* 53-55

Office Building for Clarence Whitman & Sons, Inc., New York ....*Treanor & Fatio* 56, 57

Chicago Allerton House ..*Murgatroyd & Ogden and Fugard & Knapp* 58, 60

The Forum Studies of European Precedents (Plates 41-48)

LETTERPRESS Author Page

Cover Design: "Westover" .....*From a Drawing by Louis C. Rosenberg*

The Editor's Forum.................. 55

Gold Medalists of the American Institute of Architects.............Frontispiece

Fifty-eighth Convention of the American Institute of Architects ....*John Taylor Boyd, Jr.* 277

International City and Regional Planning Conference ....*Charles Downing Law* 283

"A. I. A. Convention Daily"........... 285

Competition of the United States Gypsum Company 289

The St. Paul's Controversy ....*A. R. Powys* 297

Six Modern Bank Buildings............ ....*Dennison & Hirons, Architects* 299

Municipal Market Building, Norfolk, Va. ....*Benjamin F. Mitchell, Architect* 305

"Stillington," Gloucester, Mass. *Allen & Collens and Harold B. Willis, Architects; Harold Stark* 307

LETTERPRESS (Concluded) Author Page

Chicago Allerton House *Murgatroyd & Ogden and Fugard & Knapp, ...Architects; Palmer H. Ogden* 313

Smaller Civil Architecture of England V. Custom House, King's Lynn, Norfolk *Roger Wearne Ramsdell and Harold Donaldson Eberlein* 317

Some Principles of Structural Economics ....*James M. Green, Jr.* 325

Small Houses in the Colonial Style ....*Henry B. Humphrey* 329

Colonial Details ....*Joseph F. Higgins* 335

Small Colonial House, Flushing, N. Y. ....*Treanor & Fatio, Architects* 337

A Brick House at New Haven ....*Charles G. Loring, Architect* 339

Colonial Cottage at Glencoe, Ill. ....*R. C. Hunter & Brother, Architects* 341

Small Colonial House at Perrysburg, Ohio ....*Alfred Hopkins, Architect* 343

Stucco House at Great Neck, N. Y. ....*Oswald C. Hering, Architect* 345

House with Colonial Details, Freeport, N. Y. ....*Dwight James Baum, Architect* 347

Colonial Farmhouse at Flushing, N. Y. ....*Roger H. Bullard, Architect* 349

Small Colonial House at Westfield, N. J. ....*Hollingsworth & Bragdon, Architects* 351

Hotel Senecterre, Paris ....*C. Hamilton Preston* 353

Design and Craftsmanship in Early American Silver ....*Edwin J. Hipkiss* 359

PARKER MORSE HOOPER, Editor

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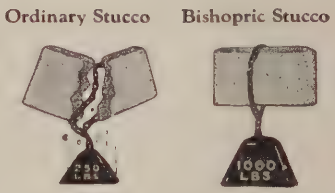

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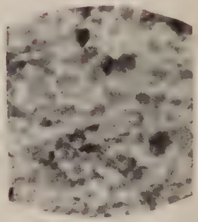

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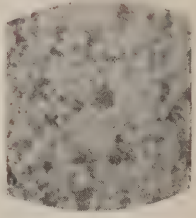

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THE EDITOR'S FORUM

EXHIBITS FROM SCHOOLS

SEVENTEEN American and six foreign architectural schools sent architectural and art work of their students to the recent Exposition of Architecture and the Allied Arts. It is believed that so far as institutions for architectural training are concerned the exhibition was the most enlightening demonstration of the progress of architectural education in this country since the Beaux Arts Institute of Design first began to encourage competitions.

The makng of the exhibit was in charge of William F. Lamb, and in commenting upon it he said: "The theory of the presentation of the problems to the schools and their methods of executing them have been derived from the Ecole des Beaux Arts in Paris, with the necessary modifications to suit our American environment. I cannot say that we have surpassed the old school yet, but there has been such a tremendous improvement in the character of the work done by the present-day architectural students in this country that the need of attending the Paris school is, perhaps, not so great as it once was.

"This phase of the exhibition will, perhaps, not make a decided appeal to the public in general, yet it will be invaluable to the younger architectural students, showing them at one time what is being done, not only in this country but elsewhere."

The institutions from which exhibits came include: Columbia University, School of Architecture; Yale University, School of Fine Arts; George Washington University, School of Architecture; Harvard University, School of Architecture; Armour Institute of Technology; University of Illinois; Boston Architectural Club; Rotch Traveling Scholarship; Massachusetts Institute of Technology; Princeton University; Cornell University; Syracuse University; John Huntington Polytechnic Institute; University of Pennsylvania; Carnegie Institute of Technology; Pennsylvania State College; University of Washington; Fontainebleau School of Fine Arts; Beaux-Arts Institute of Design; LeBrun Scholarship Fund; American Academy in Rome, Committee on Landscape Architecture; Foreign Exhibit, and the University of Oregon, with possibly a few others.

STURGIS COLLECTION

THROUGH the generosity of Mrs. D. N. B. Sturgis, the Department of Architecture of George Washington University has received the large and important collection of architectural drawings and photographs formed by the late Russell Sturgis. This collection, which consists of several thousand items, the accumulation of years of travel, study and writing, is now being catalogued and otherwise prepared for addition to the Department.

BOSTON MURAL PAINTINGS

THE management of the First National Bank of Boston issues a printed description of the four decorative panels, depicting the sea and some of its ships, which were painted by N. C. Wyeth as part of the decorations for its new building. The panels deal with four different periods or phases of shipping, as it has existed at various times during the world's history, showing: Phœnician Biremes; Elizabethan Galleons; Clippers, and Tramp Steamers. The murals, particularly appropriate for use in a city long identified with shipping and commerce, are among Mr. Wyeth's most successful work.

IN MEMORY OF PIERRE LE BRUN

SEVERAL hundred volumes of the works of de Montaigne have recently been given to the Princeton University Library by Mme. Pierre Le Brun. The gift, which was made in the name of Pierre Le Brun, also includes a notable collection of Rabelais' works and commentaries on his writings.

Professor Louis Cons of the Princeton faculty said in commenting on the gift: "The Princeton University Library now possesses one of the four or five leading collections of de Montaigne's works in the world. This collection is one of the two complete in the United States, and it is without doubt one of the richest and most significant collections of de Montaigniana extant."

All of the known editions of the great author's works published before his death in 1592 are represented in this collection. The most important book is the famous 1580 edition of de Montaigne's essays.

TILE FOR HOSPITAL USE

THE Mellon Institute of Industrial Research issued not long ago a brochure on "The Adaptability of Tile to Hospital Use." This is a publication in booklet form of a preliminary report presented to The American Hospital Association, at Buffalo, October 9, 1924, and it makes known the results of the research which is being conducted under the auspices of the Associated Tile Manufacturers for the determination of the suitability of tile for specific uses. The properties of tile are being studied broadly, and its adaptability as a flooring material is being considered from chemical, physical and hygienic viewpoints. The object of this progress report is to summarize to date the experimental findings that are of special interest to hospital officials.

Architects, constructional engineers and builders interested in the use of tile in various ways in hospitals are invited to apply for copies of the brochure, which are to be had of the Mellon Institute of Industrial Research, University of Pittsburgh.

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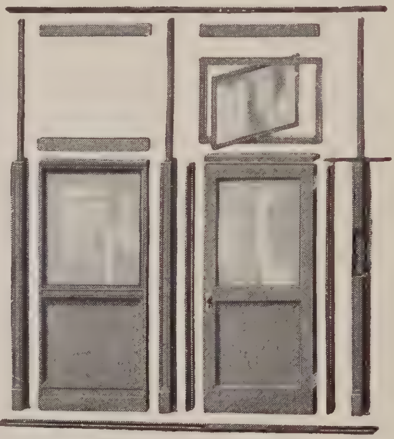

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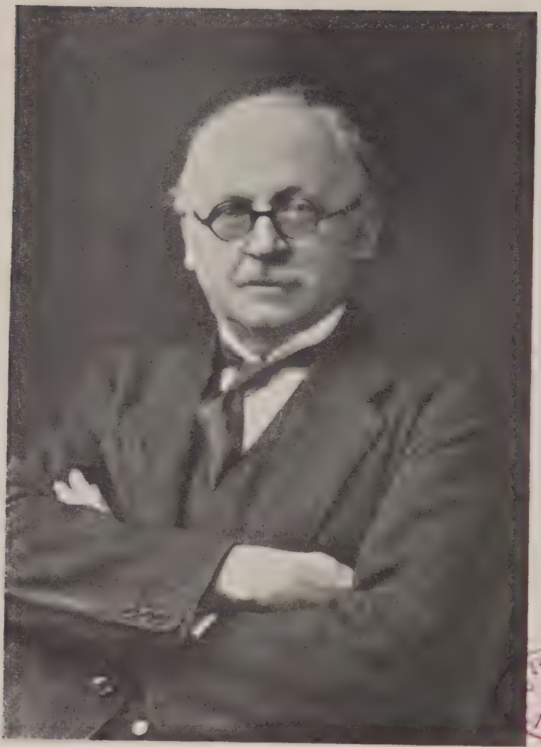

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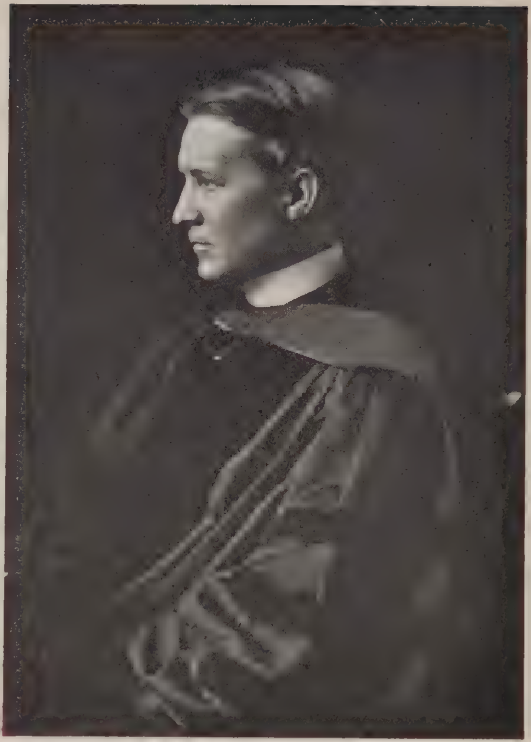

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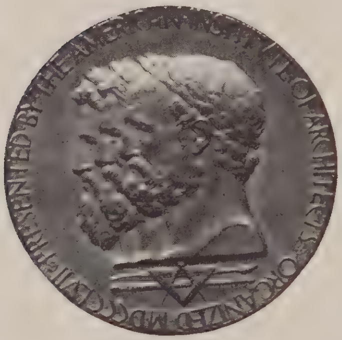
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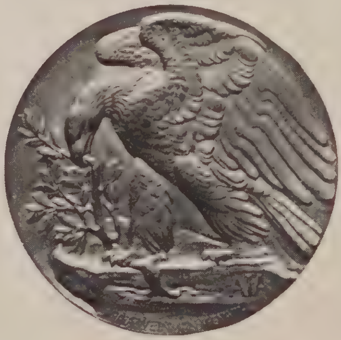

GOLD MEDALISTS OF AMERICAN INSTITUTE OF ARCHITECTS

The
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Volume XLII MAY 1925 Number 5

Fifty-Eighth Convention of the A. I. A.

THE EXPOSITION OF ARCHITECTURE AND ALLIED ARTS, NEW YORK, APRIL, 1925

By JOHN TAYLOR BOYD, JR.

ARCHITECTURE has given America efficient and beautiful buildings. Its next task is to create with these buildings beautiful and efficient cities. The ideal of finer cities is no longer visionary, but has become a stern necessity under the pressure of the industrial age, which is slowly forcing the people to demand surroundings where they may live and work in comfort and in reason and under the inspiration of beauty. This need the American architect must be ready to meet.

This is the significant truth which seemed to animate the annual Convention of the American Institute of Architects, held in New York in this the closing year of the first quarter of the twentieth century. President Waid in his opening address thus eloquently called the attention of architects to the situation:

"If it is a fact that great cities in this country are going mad with a craze for lofty buildings and canyon-like streets filled with choking gases; if it is true that masses of great buildings are a maw full of human beings out of all reasonable relation to horizontal transportation, architects should understand the danger and be the first to give sane warnings. If Commissions report great masses of poorer people living in out-of-date, unsanitary dwellings left to them by more fortunate people who refuse to live in such places, and pronounce the problem of housing for wage earners an impossible problem, should our profession sit supinely by and agree that cheap new houses for the laboring class are impossible? No, I believe that architects will make cheap houses for workingmen entirely possible.

"Architects should be thinking of underlying problems, finding solutions for them and be moulding public sentiment by imparting a knowledge of the best that history and culture and good taste can contribute for the future welfare of the race."

Mr. Waid's noble appeal was fittingly uttered in the central hall of the Exposition of Architecture and the Allied Arts, where sat the Institute "in convention assembled." Looking down from the walls on the Convention was a glorious array of beautiful buildings, the "White City" of 1925. They seemed to cast a glamour over the proceedings. More than any one thing, the Exposition brought home to all who beheld it a profound realization of the power and beauty of American architecture. Not only the architects felt its influence, for others among the public, the press and representatives of the building industry who were gathered there, noticed it also, and as if to reinforce these words of the President, the Exposition pointed silently to the future and what it holds.

And what a remarkable progress did the Exposition record! Here, on the walls of the Grand Central Palace, in actual buildings, was realized the vision of the White City of Chi-

Photos. John Wallace Gillies

Looking Toward the Entrance Hall

The Principal Side of the Court of Honor in Front of Entrance to Main Stairway

cago of 1893. The vision, which then was born in lath and plaster in one kind of building, the monumental type, has, in a little more than 30 years, spread to every sort of structure in permanent and enduring materials. It proved that in less than 50 years the American architect has wrought a revolution. Here is a complete new architecture developed, an architecture comprising all sorts of buildings — domestic, business, industrial, institutional and public, suitable for city, town, village and countryside. In architectural grasp of reality, the comparison with work done 50 years ago marks the difference between the student's school project and the work of the practicing architect many years later.

The Exposition bore witness that the first quarter of the twentieth century, just closing, has been a period of preparation, in which the architect has taken in hand every type of building known to the contractor and speculator in the nineteenth century —the home, the school, the church, the public office, the institution, the store, shop, skyscraper, railroad station, club, theater, warehouse and factory—and has transformed it, making it over to the last detail, planning it more efficiently, cutting out from it areas of costly waste space, as a surgeon removes a cancer, constructing it more soundly and durably, and—finer still—making it more human and more beautiful. It was as if the architect, in this evolution, had created a marvelous new mechanism of buildings, intricate beyond anything known before, yet practical and perfected, but as if, still unsatisfied with a bare display of technical skill, he had thought to give it poetry. He has opened the floodgates of art upon all this machinery which he and his band of experts had invented, letting a full tide of beauty sweep over the ugly, dreaded machines until they "had suffered a sea-change into something rich and strange." In subduing Caliban to the rule of beauty and of reason, the architect has wrought to vindicate and to express our age.

Only one further demonstration of the architectural revolution could be made, not possible in this exhibit, and that is an historical record showing by comparison the progress made in American architecture. Such an exhibit would display each perfected type of architects' building of today side by side with its predecessor of 50 years ago—ugly, inefficient, poorly constructed, ill-equipped—the new with the old. The comparison would include a thorough statistical analysis of the economy which the architect has brought in plan, function and construction. The demonstration would astonish architects as well as the public. Perhaps in the next exposition such an educational record will be shown.

For the success of the Exposition, the Institute has to thank Howard Greenley, who conceived its splendid decorative scheme, and who carried it to execution in a colossal effect which dazzled all beholders. Mr. Greenley has, in the course of years, through long experience gained in staging the exhibitions of the Architectural League of New York and numerous other exhibitions—especially the "Silk Show"—developed a technique of the art of arranging exhibitions which is a real contribution to American art. In this exhibit, greater than anything known in architectural exhibitions in this country, Mr. Greenley's technique came to fruition.

South End of the Court of Honor

He wrought a complete new interior in the Grand Central Palace, changing it into an art gallery for architecture designed on architectural lines, and he filled it with architectural paintings, drawings and photographs, and combined these with exhibits of other arts and of the building material trades, but making the architecture dominate all, in a simple, overwhelming effect. In this effect the fine decorations made by J. Monroe Hewlett played an important part, particularly that splendid group of colossal tapestries which enclosed the upper part of the central hall in a frieze, and which was lent to the Exposition through the courtesy of a resident of Newport. In a word, this Exposition of Architecture succeeded in giving an effect most difficult and illusive—an effect colorful, interesting and monumental. From the point of view of the impression made on the public, too much praise cannot be given to those responsible for its success.

Will the second quarter-century carry forward this architecture of wonderful buildings toward the goal of beautiful, modern cities? Transcendent opportunity, such as comes but a few times to architecture in history, places a huge responsibility upon the architect. To temper the exaggerations which were caused by the nineteenth century revolutions in science, economics and politics, which still wrack our feverish modern society—how can this be done better than by giving the people beautiful cities in which they may live and work in comfort and in reason? If architects will but realize it, a large part of the future progress and development of civilization rests entirely in their hands.

There is another significant fact about this Exposition. It goes far to prove that the impression that the architect does not control the design of buildings in this country, is wrong. Not only the visible evidence of the Exposition, but statistics appear to bear out the fact. Expressed in terms of money value, the architect now controls the design of the majority of all buildings costing over $5,000. Below that figure of cost the architect finds it difficult to operate, but the Small House Service Bureau is making progress in opening up a vast new field in low cost construction, which has seemed the most hopeless problem in present-day architecture.

Principal Entrance to the Court of Honor

Speakers' Rostrum, Court of Honor, Used for Meetings of the American Institute of Architects

The evidence of this Exposition, backed up by statistical facts, establishes the position of the architect beyond all doubt and question. How it demolishes the pessimism found in some circles, where the impression prevails that architects control the design of only a small portion of American buildings! Only a year ago, on the floor of the Institute Convention, the figure was asserted to be about 5 per cent, whereas it is probably well over 50 per cent, if not 70! Let us trust that this proof of progress will quiet the last echo of the unfortunate "post-war" agitation in the profession. Those who fought that pessimism five years ago are now vindicated, and no more will architects listen to any diagnosis of the ills of architecture which threatens the end of the patient!

Too much significance cannot be attached to this evidence of progress. It marks out more clearly our future path. That direction seems to be, since quantity has been attained, that we must now seek quality—the new White City. More significant

Italian Room of The Architectural Forum at the Architectural Exposition

still, it changes the old relation of the architect to his public. Gone is the theory that the rich patron is his sole support. Today architecture is something more than a luxury, a plaything of the rich, and no longer is the architect dependent solely on the favor of some powerful personage in private or public life. Architecture is at last becoming a democratic art, and it must hold the favor and gain the interest of democracy if it is to succeed.

Thirty years ago this situation would have seemed visionary indeed. It is said that Stanford White advised Edward Bok, the editor, that Bok's scheme to raise the standard of American taste by a campaign of publicity of small house architecture in the *Ladies' Home Journal* was impossible. Later, however, White was glad to admit that he was mistaken. At the Convention, President Waid called attention to our ugly cities, and he was quoted with approval in editorials in the New York press, whereas ten years ago he might have aroused resentment.

This new demand—the public be pleased—will undoubtedly govern the future. It will call for new policies and for renewed progress. The American Institute of Architects must be as favorably known to the public and to its leaders as are the American Medical Association and the American Bar Association. There is required a new impetus to the program of the Institute for establishing better relations with the public. The program should be pursued with vigor, through the various channels of education and publicity open to the Institute. The importance of this work was emphasized at the Convention in the reports of the Committees on Education and Public Information and City Planning, and in the conferences which were held by representatives of the Architects' Small House Service Bureau from all parts of the country.

This popularity of democratic architecture is rare, if not entirely new, in the history of architecture, bringing its heavy responsibility as well as its dangers. One recalls the episode of the building of the Parthenon, when a public agitation arose over the letting of the contracts. Phidias' honesty was attacked by a faction apparently anxious (so 'tis written) to "get" Pericles, the statesman who was the Roosevelt of his time. It is even said that Goodhue's death was hastened by a similar situation, which, however was smoothed over, but not before it was too late. Democracy will be an exacting patron, and it is said to be fickle as well; but if we be honest we must admit that it is probably no more so than the aristocrat or the plutocrat. Recall the experience of Michaelangelo with his commission for the Medici tombs, by which he was made the victim of a series of intrigues and lost what otherwise would have been his most productive years. The point is that democracy will demand from architecture the same progress, the same inspiration and the same leadership that it does from education, science and the Church. Whenever, as sometimes with the Church, this leadership falters, democracy turns elsewhere.

In this program for the future, one purpose must be foremost—always higher standards. Mr. Waid gave a clear warning of danger in his address. Architects must not allow themselves to be swamped by quantity, and they should never think that democratic architecture means a poor, cheap architecture. Democracy will not tolerate poor service long. Democracy expects leadership from the profession, and she is quite willing to pay the price when she understands the value of the services rendered. Think of the example set by the men of the medical profession, who have long served the public in private practice, hospital and clinic, and who, not satisfied with that achievement, have created in the course of years a whole new profession of sanitation and of public health which clamps down on the public a thousand restrictions which the public willingly regards. The architect has the same opportunity, and, in designing the new city, he may perchance receive more aid from the man in the street, who must live in the city and who must bear the burden of its ugliness, than he will from the rich patron who can easily and readily escape from it.

Other cities should be rescued from the fate which is slowly overtaking New York, beginning in the lower half of Manhattan Island. There today people occupy and work in buildings which are the most costly and mechanically perfect ever known in the world, yet which do not receive daylight. Many people work under lamplight most of the day, then travel under ground the remainder of the daylight hours, to sleep in the rear rooms of tall apartments, overlooking yards and courts which are so small in proportion to the extraordinary height of the building that they might as well be at the bottom of a mine shaft so far as those two fundamentals of daylight and fresh air are concerned. What an absurdity is this! What progress architecturally does this condition show over the condition of the cave dwellers? Man is not a burrowing animal, and the greatest work of architecture in city planning must be to restore to people daylight and fresh air as well as recreation space and a sight of growing things. When you think of it, these necessities of daylight and garden have been, next to shelter and convenience, the two blessings which architecture throughout history has struggled to procure for mankind. It is the growth of this congestion in cities which will force city planning; and be sure that the people will hail the leader who

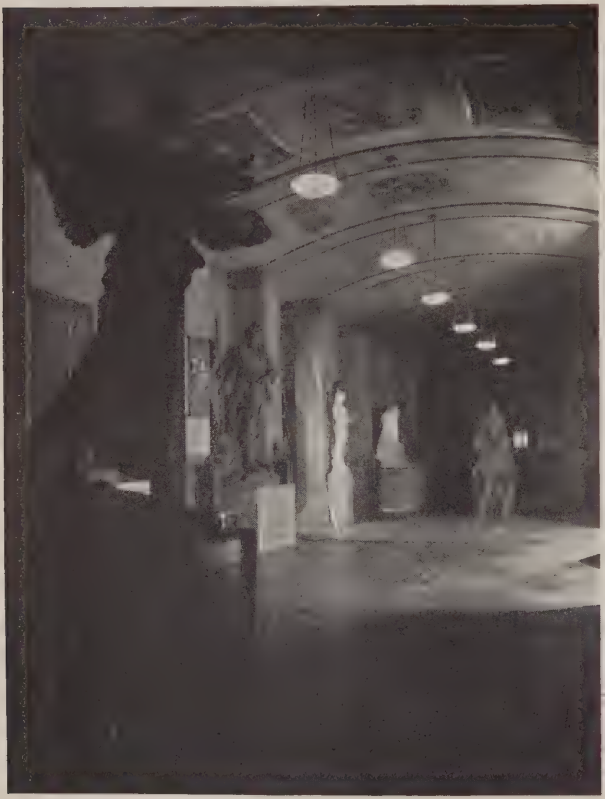
Antique Italian Door and Furniture in the Room of The Architectural Forum conducts them from out of the bowels of the earth.

In this great task it is essential to realize that, no matter what form the development may take, the artistic purpose must be kept foremost, because only insofar as he is an artist can the architect hope to maintain his control over the design of buildings. Another set of technical experts might be as practical as he, but only an artist can make buildings and cities attractively human. This means, on the part of the architect, the artistic mastery of the use of building materials, to be had by working in coöperation with craftsmen and with manufacturers of building materials to adapt the historic traditions of architecture to new conditions.

To this artistic side of professional service should be added the support brought by higher standards pertaining to the many practical sides of the profession—in construction, organization, administration and in the coöperation of the architect with industry. Preëminent among these standards is the obligation of maintaining integrity, of respect for the laws, and for fellow architects. The promulgation in the Convention of the new Canon of Ethics, enforcing observance of the registration laws, was commendable. All these advances are necessary for progress, but they require long experience to be determined and applied for the best interests of all. They form the groundwork of progress, but they are not spectacular, and the Institute does not, I think, receive enough credit for them. One should but think back to the chaotic condition in the building industry 30 years ago, before the architect aided in restoring order, to realize how essential they are.

At the Convention, city planning was a constant theme. Concurrent with the sessions of the Institute, including two joint sessions and sharing in the Exposition, there was held the Convention of the International Council of City Planners. The close coöperation between the two bodies, the exchange of views, the emphasis on city planning as the architect's work, given point by the announcements of the vast plan for New York and of the still vaster Regional Plan of New York state—all these ideas and events added inspiration to the week. A multitude of fellow artists and experts and their organizations shared in the gathering, to name all of whom would sound like a roster of the national defense which it is—the defense of art. Particularly pleasing features were the large gathering of foreign visitors and the evening reception at the Metropolitan Museum of Art at which the Institute's 1925 gold medal was presented to Sir Edwin Landseer Lutyens, and a similar award made posthumously to Bertram Grosvenor Goodhue.

All this promise of the future which was so inspiringly recorded at New York, in Convention and in Exposition, will require for fulfillment the coöperation of every practicing architect and every recruit from the schools. Architects have secured, or at least in a very few years they will secure, the quantity control of building design. But progress lies in the sphere of quality, and they have only begun to approach the field of social usefulness—the city of the future, which is the vastest field of all.



The Long Center Gallery

Corner in The Architectural Forum Room

The International City and Regional Planning Conference

By CHARLES DOWNING LAY

THE International City and Regional Planning Conference, held in New York April 20 to 24 inclusive, was a successful and inspiring meeting of eminent men, and it will long be noteworthy in the history of town planning. The Conference was organized by the International Federation for Town and Country Planning and Garden Cities, and our own National Conference on City Planning. The list of societies participating gives a vivid conception of the strength and vitality of the city planning movement, since all have a professional interest in the subject, and look with confidence to the day when forethought will replace accident or greed in the planning of cities. These societies include the American City Planning Institute; American Institute of Architects, City Planning Division; American Society Civil Engineers; American Society of Landscape Architects; National Association of Real Estate Boards; American Institute of Consulting Engineers; American Association of Engineers; American Civic Association; National Automobile Chamber of Commerce; American Society for Municipal Improvement; National Housing Association, and the New York State Commission on Housing and Regional Planning. It was a gathering truly representative.

Though all the conferees look forward to better city planning, their opinions on the subject were as varied as their interests. There were some who considered the traffic problems of cities as of chief importance, and they were divided in their interests between the control of traffic in existing cities and the planning of future cities for a traffic which no one can now estimate. Noulan Couchon, of Ottawa, spoke of the necessity of making a fresh start, discarding our old lot and block system for something better, which he thinks will be a hexagonal block with interior courts. The zig-zag avenues of this plan, all of equal importance, will permit a change of direction on a 120° angle instead of the sharper right angle, and this will tend toward the reduction of danger of collisions at corners. Other speakers were interested in freight transportation, which now clutters our city streets; still others were concerned with super-highways, which give high speed roadways with no grade crossings, thus relieving city streets of through traffic. Platting or site planning was discussed by Prof. Pedersen of Trondhjem, Norway, who was followed by Philip Nichols of Boston and by Frank B. Williams of New York, experts on the legal control of street layouts and other city problems. Those interested in the social aspect of city planning, which was in the thoughts of all, were most concerned with the amenities interesting to the British delegates, who are always for distribution, de-centralization, garden cities and other schemes which appeal to sentiment. There were none to raise their voices and to sing a pæan for the modern city itself, which, aside from occupying their thoughts for the moment, made it possible for them all to meet. The value of the airplane surveys for preliminary studies of the city plan and the possible necessity of having airplane landings in the modern city were fully expounded.

The great event of the Conference was the Wednesday evening meeting, held in conjunction with the Association for the Regional Plan of New York, at which Col. W. J. Wilgus read his paper on "Transportation in the New York Region," which considered all transportation of goods and people, whether by water, railroad, or highway. The plan proposes a complete reorganization of railroad tracks and terminals throughout the region. They will be arranged so that freight which now passes through the city will go around it on one of two belt lines. Freight in less than carloads will be handled in freight subways from the railroad yard to its destination at the door of the consignee. Many passenger terminals are proposed, giving better distribution and greater convenience, especially when linked with the unified suburban rapid transit system as proposed by D. L. Turner. More startling, though no more revolutionary, is the proposal to run a causeway from Rockaway Point to Sandy Hook, thus enclosing the lower bay except for an opening at the channel, where the railroads and highways would be carried under the channel in tunnels. This causeway, besides giving a location for the belt line railway and highway, would provide many miles of new beach and seaside parks, which, because of the intimate relation of railway and highway and beach, would be easily accessible to all in the region. Filling in parts of the lower bay to provide more land for parks or for industrial and business or residential uses, though not considered in the report, would be a consequence of building the causeway.

As Col. Wilgus says in his summary, unification of all transportation and planning for transportation in the whole area is the only hope, and to deny the possibility of this is to deny our capacity for self-government. As the railroad is responsible for the existence of our great city, it is clearly the function of the city to control the railroad in order that its reasonable and healthy growth may not be interfered with. Col. Wilgus' studies set us a long way forward toward the time of unified control, for he has vision to see that all these things involve a valuable by-product in creation of usable areas, in the reduction of costs, in greater convenience, and in the individual's liberty to pursue health and happiness, all of which justifies their great cost to the public.

A joint session with the American Institute of

Architects concerned itself with the relation of the architect as designer of buildings to the city plan, and the restrictions on building which are part of the plan. Sullivan W. Jones, State Architect, and Clarence S. Stein, Chairman of the New York State Commission on Housing and Regional Planning, spoke of the need for planning both in city and state. There were on exhibition in the meeting room charts and maps prepared by this Commission, showing graphically and by statistics the physiography, agriculture, industry and distribution of population in New York state. The inter-relations of these factors in the planning of the state were made clear, so that the conclusions were obvious.

A morning conference was devoted to "Zoning in Practice," at which Edward M. Bassett of New York led the discussion. Zoning is one of the greatest accomplishments yet made in city planning, and it has been managed so skillfully that the law has won the approval of everyone. It is remarkable that a revolution of such tremendous importance has been put through without conflict, and almost without dissent. Architects accept it gladly, knowing that its limitations do not make the designing of a building more difficult; real estate owners welcome it for its protection and stabilization of values, and all see in it a reasonable control of individual activity for the benefit of all. Artistically it has had a great, but unexpected influence. We see now that the cornice line required by the height restriction gives unity to all the buildings on a block or on an avenue, and that the set-back privilege allowed above the cornice gives a chance for the delightful and imaginative arrangement of towers and of pyramidal groupings which has added much to the beauty of the city. The benefit is already apparent.

There was, it seemed throughout the Conference, a clear division between those who think of the city as something to make excuses for, who think of it as a great behemoth devouring the innocent and playful children of the fields and the countryside, and those who see in it the faults of any new organization, but who look forward to perfecting the machine. The excusers are always proposing means to restrict its growth, to distribute its people and its industries, and to return to a more primitive kind of life. They see the suffering of many people; they feel annoyed and inconvenienced by its crowding, and they would, it seems, like to end it all, turning the clock back to, say, 1830. How this is to be accomplished, they do not tell us. The defenders of the city, being less sentimental and more forward-looking, see the modern city as the natural result of industrialization, made possible by steam and electric railroad transportation, and fostered in its growth by all the later applications of power to human affairs. The oldest modern city is hardly more than a century old, and its greatest growth has been during the last 40 years. It is ridiculous, they think, to suppose that the cruelty, hardship and inconvenience inevitable to such rapid growth cannot be remedied during the next 40 years. They would make the city greater and greater in size, more perfectly adapted to the needs of working people, and they resent any suggestion of limiting its size.

The characteristic delights of the city, which are to be found in the lively, crowded highways and in the formal squares and parks, without any suggestion of the real country, are as real, they claim, as those of the country, though different in kind. They look with equanimity on the time when most of the people will live in cities, going forth from them to work in the fields, and to the time when large areas of the country will return to their primitive forested conditions. Their love for the city seems to be shared by nearly ten million people in this region, who make no effort to leave, but who are all the time demanding more of the city in convenient living and easy transportation. Besides this, they gladly pay every year more for the benefits which it gives.

Photo. John Wallace Gillies

Court of Honor at the Exposition of Architecture and the Allied Arts

A. I. A. CONVENTION DAILY

This daily contains the only official printed news, information and announcements for delegates and visitors to the 58th Convention.

PUBLISHED BY THE STAFF OF THE ARCHITECTURAL FORUM
for the
COMMITTEE ON PUBLIC INFORMATION
John V. Van Pelt, Chairman

Copies obtainable without charge at Hotel Roosevelt and at Information and Architectural Forum booths at Grand Central Palace.

VOL. I NEW YORK, WEDNESDAY, APRIL 22, 1925 NO. 3

TODAY'S EVENTS

MORNING SESSION

9 a.m.—Business session of the Convention, Grand Central Palace.
Report of the Press of the A. I. A.
Reports of Committees.

AFTERNOON
DRAFTSMEN'S LUNCHEON

The Draftsmen will be the guests of the day.

12:30 p.m.—Luncheon meeting—Harvey W. Corbett presiding—at Hotel Roosevelt. Hugh Ferris, J. Scott Williams, H. Van Buren Magonigle, Kenneth M. Murchison.

Award of Octagon Competition prizes.

AFTERNOON AND EVENING

2:30 p.m.—Addresses and discussion. Draftsmen and students invited. C. H. Blackall, Prof. D. C. Miller, Dr. Arie Keppler, of Amsterdam. Session at Hotel Roosevelt.

2 to 4 p.m.—Reception in architects' offices.

2 to 6 p.m.—Excursions and teas.

2 to 10 p.m.—Exhibition open to public.

4 p.m.—Meeting of National Council of Architectural Registration Boards at Hotel Roosevelt.

5 p.m.—Regional Council. Plan of New York and its Environs.

5 p.m.—Tea for ladies at Junior League, 133 E. 61st St.

8 p.m.—Theatre party. Music Box Theatre, 239 W. 45th St.

CONVENTION BUSINESS SESSIONS BEGIN

Officers' and Board Reports Read

The first business session of the 58th annual convention of the Institute was called to order by President Waid yesterday morning at the Palace.

The President's Report was read, followed by that of the Secretary, read by Edwin H. Brown, the Treasurer's report read by William B. Ittner and finally the Board of Directors' report was given. These reports will be published in full in the Journal of the A. I. A.

President Waid said that he was delighted to see so many of the Past Presidents attending, and others whose names he would like to mention if time permitted. He did, however, extend greetings to four men who had been members for from forty-three to fifty-nine years. Glenn Brown, of Washington, a member for 43 years; Mr. Keller of Connecticut, a member for 46 years; A. C. Bruce, of Atlanta, who is ninety years of age, and who has been a member for 48 years; Peter B. Wright, of Pasadena, eighty-seven years of age, and a member of the Institute for 59 years. Messages of welcome were sent to the latter two, who were not present.

R. H. Shreve, Wednesday Chairman

TANG OF SEA AIR FRESHENS SPIRITS ON BOAT RIDE

Large number of prominent Americans left yesterday on tour.

> "Sailing, sailing, over the bounding main
> Many an Architect sailed away, and then sailed back again
> Meetings, speeches, all were left at home.
> Sailing around Manhattan near the ocean's briny foam."

After yesterday's luncheon at the Roosevelt, motor cars took a party of visitors to the pier at the foot of West 35th, where the steamer, amply stocked with provisions for the long voyage, gently rose and fell, waves lapping her sides.

Promptly at 3 P. M. came the warning whistle, "All Ashore, That's Going Ashore"; the gangplank was drawn up, ropes cast off, and the good ship slowly nosed her way into the Hudson.

A few tears dashed surreptitiously away, and those left behind, still dimly seen at their business handkerchief waving, were forgotten by the lucky ones on board

Sauntering about to get their sea-legs and acquainted, passengers were dismayed to find, in the prow of the boat, a huge binocular, similar to those used in studying the moon in detail. This, the captain explained, was for the purpose of viewing things "of architectural interest." This, as explained to our reporter, was the one thing that the passengers thought they had gotten away from in going to sea.

Steaming majestically past Grant's Tomb, the ship gathered speed, swung around the corner at Spuyten Duyvil, into the Harlem River, down the East River, passing under the cantilever railroad bridge, over hidden rocks, through Hell's Gate, and past Ward's Island, Welfare Island (they're goin' by too fast now), swept around the big curve at South Ferry, into the Hudson again, raced up the homestretch, and brought up with a jerk—at the 35th Street pier.

When a check-up of the passengers was made, it was found that all but two were from New York.

The boat may have gone the [illegible] way around, but a good time was had by all.

Architects and Town Planners in Joint Session Last Night

ROBERT D. KOHN INTRODUCES DISTINGUISHED EUROPEAN AND AMERICAN SPEAKERS

The Tuesday evening session of the A. I. A. Convention was given over to a consideration of city and regional planning with particular stress laid on the architect's logical interest in this subject and reasons for close coöperation between architects and city planners.

The evening session was opened with Robert D. Kohn presiding and was a joint meeting of the Institute Committee on Community Planning, of which Clarence S. Stein is Chairman and the International Town, City and Regional Planning Conference which is holding its annual convention this week in New York at the Hotel Pennsylvania where over 300 city planners are representing American and [illegible]

It will be remembered th[illegible] interesting annual meeting of [illegible] International City and Regional Planning Conference was held in Am[illegible] and was attended by [illegible] planners from practically [illegible] in the world. The [illegible] ferences has been a great [illegible] the idea of efficient planning for cities, towns and entire districts and has led to a comprehensive study of the economic value of predicting and controlling urban growth, both in physical plan and through zoning and kindred [illegible]

It is but natural that the architect should be keenly interested in such work not only because of its value to the community but because it establishes at once a demand for good architecture for all types of buildings. The fact is perhaps worthy of comment that wherever communities have been developed under careful scientific planning or where towns and cities have adopted city planning ordinances, an almost immediate effect has been shown in the form of increased demand for architectural service. The influence extends even to buildings of the industrial type and it is for such reasons that a commendable spirit of coöperation has grown rapidly between the professions of town planning, architecture, and landscape architecture.

Speakers of the Evening

Tuesday evening's session was not in any sense a business meeting nor was it the primary purpose to develop any specific program of joint activity. The meeting was arranged for the specific purpose of an exchange of knowledge and inspiration, with particular reference to the part that the architect has played and will play in this general field of community betterment.

The speakers of the evening were Raymond Unwin, the noted British city planner; Lewis Mumford, author of "Sticks and Stones"; Clarence S. Stein, Chairman of the Committee on Community Planning of the American Institute of Architects; George C. Gardner, Chairman of the Springfield City Planning Committee; Sullivan W. Jones, New York State Architect, and Dr. August Bruggemann of the Sorbonne, Paris.

Mr. Mumford spoke on the past history of city planning in America, with particular reference to the contribution which has been made by architects in the course of that development. Mr. Gardner discussed the obligations of the architect in the [illegible] city planning [illegible] Mr. Unwin, [illegible] an experienced architect and city planner, pre[illegible] interesting lights on the correla[illegible] activities in both fields wi[illegible] of references to his experience [illegible] nection with his European work.

Sullivan Jones spoke on the broader principles of regional planning and the opportunity for the architect to take part in this work. He made the point that regional planning [illegible] and must sa[illegible] life of the community or re[illegible] Archi[illegible] function and it is therefore logical that the architect should be the regional [illegible] al planning where the problem is one of reclamation.

Stein Discusses Architect's Viewpoint

An extremely interesting [illegible] made by [illegible] Stein, Chairman of the A. I. A. Committee on Community Planning, in his address on the limitations placed upon the architect when undertaking any type of project and the [illegible]ility of his interest in the broader phases of community planning. His address follows:

"Most architects look back with a certain regret to their student days when their projects were such as to give freedom to their imagination. The King or President for whom we were to plan according to the Ecole program apparently had limitless resources, land without end, and in his happy country there were no building codes, no zoning laws—the sky was the limit!

"How different are the realities we face when we start the practice of Architecture. After that long wait—when the first jobs come, how our style is cramped by innumerable limitations. There is a narrow deep lot lost in an endless row of similar narrow deep lots. What a site for our glorious dream! A street so narrow that our facade which was such a lovely pattern on paper is seen only by those who lie on their backs, or so wide that the little house we have planned is quite out of scale to the magnificent boulevard.

"And then there is never money enough. 'The land costs so much. The mortgage was so expensive,' the owner explains, and so we must trim the building.

"The Architect's work is cramped and crippled by a thousand limitations. He accepts them because he has thought they are beyond his control.

"The Committee on Community Planning of the A. I. A. has devoted the last couple of years to a study of this problem to find out to what extent the architect can gain a greater control of his own work. It has come to the conclusion that a great part of these limitations are due to faulty city planning and unnecessary excessive regulation. The Architect, if he would devote more thought to public affairs, and particularly to community planning, could do much to free himself of these limitations so that his opportunities for service to the community and his opportunity as a creative artist might be more fully realized.

"The extent to which the elements that

(*Continued on page 2 column 2*)

This and the three following pages show in miniature the first daily paper ever published covering a Convention of the American Institute of Architects. The paper appeared for the five days of the meeting, this being the Wednesday issue. The Daily was edited and published by the staff of THE ARCHITECTURAL FORUM *for the A. I. A. Committee on Public Information. A few complete files of the Daily are available, and requests for them will be filled until the supply is exhausted.*

TUESDAY LUNCHEON A HUGE SUCCESS

Capacity Crowd Hears Pite and Howard

The ballroom at the Hotel Roosevelt was packed to accommodate the number of architects and their guests attending the first architectural luncheon of Convention week. The Tuesday luncheon committee, consisting of Walter D. Blair, Fred Mathesius, Stowe Phelps, H. A. Jacobs and A. Stewart Walker, deserve great credit for the interesting speakers and delicious luncheon provided.

After coffee had been served and the tables cleared, President Waid rapped for attention and gave out a few notices in regard to the Wednesday and Thursday luncheon plans for the women visitors and the arrangements for the afternoon boat trip around Manhattan island. He then spoke about the unavoidable and unfortunate absence, on account of illness, of Donn Barber, Chairman, Convention Committee, by whom all the arrangements for the entertainment of the out-of-town guests had been most painstakingly and successfully planned. Mr. Barber's letter extended a hearty welcome to all the delegates, members and guests, and expressed his keen disappointment in not being able to appear in person to greet them and wish them an enjoyable visit in our "big village."

President Waid next introduced Abram Garfield of Cleveland, Second Vice-President of the American Institute, to whom charge of the meeting was then turned over. After brief remarks at his pleasure in presiding over so distinguished and interesting an assemblage, he announced that the President had given him permission to do whatever he wished with the meeting. He therefore seized upon this fortunate opportunity to introduce to the architects of America, two outstanding figures in the development of British architecture. Mr. Ebenezer Howard, who was first introduced, spoke of his gratification over the auspicious circumstances which made it possible for him to express to the architects and people of America his very deep personal regard, and his sincerest admiration of our wonderful buildings. He touched modestly upon the great work he has accomplished in conceiving and carrying out several of the great garden city developments in the suburbs of London. The time is near, he said, when such important and invaluable social service will be carried on to an extent in this country far surpassing that achieved by his associates and himself in England. And that, although he was neither architect nor financier, through a strange combination of circumstances, he had found himself called upon to carry out the work for which he was destined.

Following Mr. Howard's too brief remarks, Vice-President Garfield introduced Professor Beresford Pite, who brought to the American Institute of Architects the greetings of the Royal Institute of British Architects. Professor Pite delivered a brief but distinguished address on the importance of a closer allegiance between the architects of Great Britain and the United States. He concluded his dignified appeal with the observation, that as the roots of American civilization were deeply embedded in the soil of Great Britain, it was in English rather than in European architectural precedent that architects of America should seek and derive their inspiration.

SEND DAILY NEWS!

Any information, or pictures for publication in A. I. A. Convention Daily, should immediately be forwarded to Daily Editor, care The Architectural Forum, 383 Madison Avenue. Telephone Vanderbilt 5547.

A. I. A. and Town Planners Meet

(Continued from page 1 column 4)

make up the cost of a building are beyond the control of an architect, is realized when he considers that in the normal small house the architect generally touches but 55 per cent of the cost of a house. The remaining portion covers a multitude of accessory matters, in which public improvement costs, utility connections, carrying charges, and so forth represent the major part. One of the outstanding elements in cost is outside the province of both the architect and the community planner; namely, the rate of money. Yet the New York Housing and Regional Planning Commission has found in dealing with the problem of rebuilding the obsolete tenements that a 1 per cent drop in the interest rate produces as great a result in the cost reduction as a 15 per cent saving of building costs on the entire structure. Though this element of money falls outside the field of community planning and is largely beyond the influence of the architect—but this should not be true of the street or plot plan that forms the setting for the architect's work.

Gridiron System Kills Architecture

"The effect of the monotonous gridiron system upon architecture has frequently been noted. The sameness of the plots, the absence of special sites, the sidelong approach to every building great or small, inconspicuous or monumental, all tend to stifle the imagination of the architect. The overcrowding encouraged by our traditional lot plans is nothing but a dead loss.

"In all our urban communities the demand for street frontage has increased the ratio of streets to buildings, and has fostered the deep narrow lot. Insofar as buildings are considered solely as a means for increasing the turnover of capital this type of layout is admirable.

"We are gradually learning, however, that the street is a function of the building, and vice versa, so that if we have wide streets, heavily paved, and carrying a large amount of traffic, we will be driven to erect tall buildings upon them in order to meet the carrying charges; and by the same token, if we erect tall buildings we are driven to further expenditures through widening or duplicating the streets by underground tubes or aerial avenues, and the 'economy' of the tall building is to a large degree offset by the vast public expenses that must be incurred in even partially serving it.

"The notion that streets can be laid down without respect to use is a fallacy. Wide streets equipped with expensive utilities, prolonged into a suburban area, determine the character of its development; in many cases they make the tenement house of four or more stories all but a necessity, whereas streets planned directly for residence service would make the two-story house possible. We habitually permit the municipal engineer to give a form to the city without determining the functions; whereas the form is meaningless and obstructive except in definite relation to the functions. The city plan likewise exerts an influence over the placement and composition of buildings; it determines whether a building shall be approached or whether it shall be reached in a sidelong fashion. Some of our cities which have the conventional gridiron have been trying desperately to provide civic centres for their major public buildings, where they may be grouped in a monumental way, but the system of gridiron planning creates no natural predominating sites for naturally predominating buildings; and where by accident we have an odd corner, we have so lost appreciation of site value in anything but the financial sense of the word that it as likely as not will be occupied by an indifferent structure. Columbus Circle is an excellent example of this.

Basic Plot Planning

"When one starts with the community as a whole instead of the individual buyer of land or owner, it is possible to make a great improvement in plot planning. This does not mean that it is necessary to do away with individual ownership; it means only that the size and shape of the individual plot should be determined by the best needs of the whole. Instead of fitting our houses to plots whose size and shape were determined purely on commercial grounds, community planning demands that the commercial arrangements shall be shaped to best serve the character of the whole development.

"The next limitation that must be attacked is the customary grouping of houses. The individual detached or semi-detached house that is common in our American cities in all their more recent portions gives neither privacy nor comfort, nor free exposure to air and sunlight; just the contrary. By combining houses in units of six and eight, as was done in the war housing experiments of the U. S. Housing Corporation and the U. S. Shipping Board, a unit that lends itself to more adequate architectural treatment is provided, wasted land is redeemed, and a greater degree of privacy is assured.

Stifling the Architect's Imagination

"It is not only mechanical city, street and plot plans that are stifling the architect's imagination and destroying his opportunity for service as weeds destroy the best planned garden. There are also a multitude of regulations invented by unimaginative reformers and legislators to protect the public from the selfish speculative builder. Thus the architect is handicapped not only by the bad conditions, but by regulations which are established to combat them. It has almost come to the point where our lawyers and reformers have more to do with the planning of our buildings and communities than our architects.

"As long as congestion, high site values, and rapid turnover are the aims of urban buildings, there is little chance of the architect's being able to practice his art with any prospect of stable achievement within our existing centers. Within our growing cities he is hampered by a fine network of established usages, vested interests, high land values, and reckless city plans and city improvements, to say nothing of the procrustean set of regulations designed to reduce the sanitary hazards of bad planning and human hazards of fire.

The Architect's Opportunity

"Does this mean then that nothing can be done? On the contrary, the continued increase of population; the continued demand for new buildings: homes, offices, schools, factories, means that there is an infinite opportunity for the architect to exert control over the factors that have hitherto balked him, once he and his clients begin to turn their backs upon the existing centers and prepare to start with a clean slate. Our fresh increments of population may either be added automatically to existing centers, or they may be spotted in new centers. Inertia tends to produce the first development; and our business system, with its eye to turnover and prospective inflation of values, tends to further it. Intelligence and imagination, however, work in the direction of the second development; and farsighted industrialists like Ford and Filene and Dennison, as well as a large number of industries that put the welfare of their workers on a par with the efficient location of their plant, have here and their begun to favor it.

"The architect has nothing to gain from the forces of inertia, the forces that are heaping up and making more intolerable our big cities, for in the long run these forces will dispense with his services. He has everything to gain from the comprehensive and enlightened group action necessary to create the Garden City, and to create that new regional framework, based upon the more effective relation of communities and industries to the natural environment.

LADIES PROMINENT IN DAY'S CALENDAR OF SOCIAL EVENTS

Mrs. J. R. Gordon and Mrs. Pleasants Pennington Hostesses

The business session at the Palace will be taken up with reports of the A. I. A. and the various committees.

Draftsmen will be the guests of the day at the luncheon, to be presided over by Harvey W. Corbett. Hugh Ferris, J. Scott Williams, H. Van Buren Magonigle, and Kenneth M. Murchison are among those expected to make addresses. Following the luncheon, the winners of the Octagon Competition will be announced.

At the afternoon session, which will be held at The Roosevelt, talks will be given by C. H. Blacksall, Professor D. C. Miller and Dr. Arie Keppler.

Ladies Active in Day's Doings

At the Roosevelt luncheon Mrs. J. R. Gordon, assisted by a committee of seven, will act as hostess. At 5 o'clock Mrs. Pennington will give a tea for the wives of the delegates at the Junior League Club, 133 East 61st Street. Mrs. Harvey W. Corbett will assist Mrs. Pennington as hostess.

Ladies and men alike are looking forward eagerly to the theatre party scheduled for this evening. The A. I. A. has taken over the entire theatre for the performance at the Music Box, and much gaiety is expected to develop in the course of the evening.

Mr. and Mrs. Delano to Entertain

All the delegates to the Convention and their ladies are invited by Mr. Wm. Adams Delano to the reception at the India House, Hanover Square, on April 23rd, at 10:30 o'clock. There will be supper and dancing. Those who wish to accept the invitation, please notify Mr. Delano, 126 East 38th Street, telephone Caledonia 5850, in such time that he will receive word before noon on Thursday, the 23rd.

Architects At Home Today 2 to 4 P. M.

The following will be "At Home" 2 to 4 P. M.:

Donn Barber, 101 Park Avenue.
Grosvenor Atterbury, 139 East 53rd Street.
Carrere & Hastings, 52 Vanderbilt Avenue.
Delano & Aldrich, 126 East 38th Street.
Aymar Embury, 2d, 150 East 61st Street.
J. H. Freedlander, 681 Fifth Avenue.
Bertram Grosvenor
Goodhue Associates, 2 West 47th Street.
Helmle & Corbett, 132 West 42nd Street.
Hunt & Hunt, 28 East 21st Street.
Ludlow & Peabody, 101 Park Avenue.
McKim, Mead & White, 101 Park Avenue.
Geo. B. Post & Sons, 101 Park Avenue.
James Gamble Rogers, 367 Lexington Avenue.
Taylor & Levi, 105 West 40th Street.
York & Sawyer, 100 East 42nd Street.
Cross & Cross, 385 Madison Avenue.
Electus D. Litchfield and Rogers, 477 Fifth Avenue.
Raymond Hood, 40 West 40th Street.

Princeton University Extends Invitation

The School of Architecture of Princeton University cordially invites you to spend the day of Saturday, April 25, 1925, in Princeton, in order to visit the buildings of the University and the points of historic interest in the town.

Those who wish to take the trip, which will be held regardless of the weather, are requested to notify the Secretary of the School of Architecture of Princeton University.

A. I. A. CONVENTION DAILY, WEDNESDAY, APRIL 22, 1925 3

Exclusive Photos of Convention Notables

More Will Be Published Tomorrow

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(Left to right) Abram Garfield, Cleveland; E. J. Russell, St. Louis; Alfred Granger, Chicago; C. H. Walcott, Chicago; George D. Mason, Detroit

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(Left to right) Hugh Martin, Birmingham; Mr. and Mrs. William F. Warren, Birmingham; A. Ten Eyck Brown, Atlanta

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Guy Lowell, Boston

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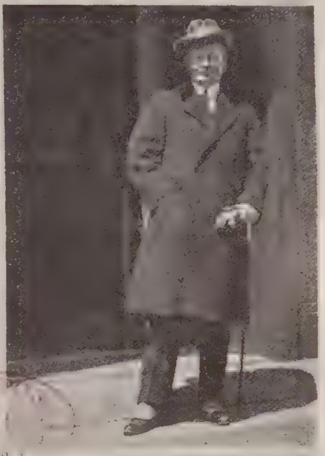
(Left to right) Charles Z. Klauder, Philadelphia; Eliel Saarinen, Chicago; Irving K. Pond, Chicago; Professor Beresford Pite, England



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Eliel Saarinen, Chicago

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(Left to right) William L. Steele, Sioux City; F. R. Walker, Cleveland; C. H. Hammond, Chicago.

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(Bottom row, left to right) William A. Delano, New York; Ellis F. Jackson, Providence; E. B. Green, Buffalo; (Top row, from left to right) Roger Gilman, Providence; F. Y. Joannes, New York.

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(Left to right) Franklin J. Kidd, Buffalo; Louis Greenstein, Buffalo; H. F. Hudson, Buffalo.

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TOWN PLANNING AND LANDSCAPE EXHIBITS IMPRESSIVE FEATURE

Beautiful Examples Shown of This Important Work

The impressive exhibits made by the town and city planners and the landscape architects at the Exposition of Architecture and Allied Arts prove that the public is quite aware of the importance of the work which they do so well. Photographs, drawings, and in many instances actual models, show what has been planned for cities and towns in all parts of the world. From England, for example, comes an impressive plan for the development of "Greater London"; Leeds and Bombay have likewise engaged the attention of town planners; Rheims and Halifax, the one devastated by war and the other ravaged by fire, have been replanned and will be rebuilt upon improved lines. To come nearer home, there are important changes proposed to relieve the congestion of downtown Boston, other extensive work in one of the Boston suburbs planned by John Nolen, work in connection with a memorial bridge at Springfield, designed by Fay, Spofford & Thorndike, and the beautiful layout at the Cooper River Parkway district in Connecticut planned by Charles Wellford Leavitt & Sons. For New York the most ambitious plans have been drawn, including (among other details) the filling in of part of the upper bay and the East River, to greatly enlarge the city's area,—a large scheme, it is true, but probably not as vast an undertaking for New York in this day as the filling in of the Back Bay was for Boston some decades ago.

The Exposition is rich in its exhibits of what is regarded as landscape architecture proper. No better work in this field has ever been done than that for Boston's park system, work which transformed commonplace areas into a park system of great beauty; other fine work is that done at Graceland Cemetery, Chicago, where landscape architecture has triumphed over the ugliness of a piece of flat Illinois prairie. Both these achievements have been set forth by large photographs. Landscape architecture, when it aids domestic building, is seen at its best. From many cities have come exhibits of work which show how great is the dependence which architecture places upon the work of the landscape workers. As might be expected, landscape architecture and architecture are seen at their best when they are developed and coördinated by architect and landscape architect. The result is then likely to be complete harmony, and instances of this are seen in photographs which give glimpses of estates such as "Laverock," at Chestnut Hill, Pa., the result of the collaboration of Charles A. Platt and Ellen Shipman. Landscape work of the best order is also exhibited by Martha Brookes Hutchison, that at "Merchiston Farm," Gladstone, N. J., and by Ruth Deane, the estate at Syosset of Mrs. Monroe Douglas Robinson. There are several excellent examples of gardens in cities, made from the necessarily small areas of back yards

Recommended Plays

What Price Glory—Sacred and profane love, mostly the latter.

They Knew What They Wanted—Pauline Lord gives a superlative performance, ably seconded by Richard Bennett in a Theatre Guild production.

Rose Marie—Just this side of opera.

The Student Prince — Musically splendid.

Music Box Revue—The Official Convention Show, and a good selection.

Is Zat So?—Ringside Comedy at home.

Abie's Irish Rose—You can see this next trip.

OFFICIAL NOTICES

Final Notice on Theatre Party Tonight

There is still an ample supply of excellent seats available. These tickets will be obtainable ONLY at the theatre party desk in The Roosevelt until after today's luncheon. If any tickets have not been sold by then they will be returned to the Music Box Theatre box office. The Committee wishes to emphasize that the remaining seats are in desirable locations, commanding an excellent view of the performance.

Coupons issued to delegates *should* be exchanged for theatre tickets before 12 o'clock (noon) Tuesday, April 21st, in order to secure the better seats reserved for delegates. Coupons will not be received in exchange for tickets after 12 o'clock noon today.

Each *Delegate*, upon registering, is entitled to receive free of charge one (only) coupon for himself, and upon request one (additional) coupon for *accompanying registered* member of family or guest. Such coupons shall be issued *only to delegates*, and will be exchanged for tickets at the theatre ticket desk.

Each registered delegate may secure additional tickets (not coupons), and registered members and registered guests may secure their tickets upon presentation of identification card at the theatre ticket desk, and the payment of $3.00 for each ticket. Note that the identification card of the (*registered*) person for whose use the ticket is intended must be presented when each ticket is purchased.

Draftsmen's Luncheon Today

Provision has been made for seating 900 and reservations now number over 800. Therefore, kindly make your reservation at once, if you have not already done so.

R. H. Shreve,
Chairman, Entertainment Committee.

Lower Manhattan Tour Thursday

In the printed program under features arranged for Thursday afternoon, unfortunately no mention was made of a carefully arranged tour through the lower part of New York City. The parties, which have been divided into five groups, will leave The Roosevelt shortly after luncheon, and will be escorted by competent guides through the most interesting buildings on lower Manhattan.

It is particularly important that those who wish to take this trip leave word at the Convention Information Desk, today if possible, or with any of the following members of the Thursday Committee: Livingston Pell, Stowe Phelps, Edward L. Tilton, John A. Tompkins, Stephen F. Vorhees.

W. O. Ludlow,
Thursday Chairman.

Ladies Entertainment

As only a limited number of guests can be entertained, the wives of Institute members, and of visiting delegates wishing to attend the Junior League Tea on Wednesday, the Colony Club Luncheon on Thursday, and the Women's City Club Tea on Friday, are urgently requested to register not later than Wednesday in the Ball Room, Hotel Roosevelt.

Mrs. Donn Barber,
Chairman,
Ladies' Executive Committee.

Last Chance to Register—9 A. M. to 12 M. Today

The Committee on Resolutions requests that all motions or notes on motions which you desire to have made, be handed to D. Knickerbacker Boyd, to facilitate work of officers.

Partial List of Attending Delegates

Additional Names Tomorrow

Officials and Ex-officials

Irving K. Pond, Chicago
Henry H. Kendall, Boston
D. Everett Waid, New York, President
Abram Garfield, Cleveland, Second Vice-President
Edwin H. Brown, Minneapolis, Secretary.
Wm. B. Ittner, St. Louis, Treasurer
Edward C. Kemper, Washington D. C., Executive Secretary.
William Emerson, Boston
Benjamin W. Morris, New York
William L. Steele, Sioux City
C. Herrick Hammond, Chicago
C. C. Zantzinger, Philadelphia
William J. Sayward, Atlanta
Nat Gaillard Walker, South Carolina

Alabama

Frederic Biggin
Hugh Martin
Salie, Jacob E.

Arkansas

Eugene J. Stern

Baltimore

Laurence Hall Fowler
Walter M. Gieske

Boston

Harry J. Carlson
Charles Collens
Gordon Allen
Frank A. Bourne
William Stanley Parker
Arthur Wallace Rice
Ralph T. C. Jackson
Niels H. Larsen
Miss Eleanor Manning
Hubert G. Ripley
Francois A. Rousseau

Brooklyn

William P. Bannister
Alexander Mackintosh
Frank H. Quinby
William H. Gompert
John B. Slee

Buffalo

Will Alban Cannon
Louis Greenstein
Franklyn J. Kidd
Simon Larke
Paul F. Mann

Central Illinois

Rexford Newcomb
L. H. Provine
L. Eugene Robinson
Clarence A. Martin

Central New York

Charles Henry Conrad
George Bain Cummings
Clement R. Newkirk

Chicago

Pierre Blouke
J. C. Bollenbacher
Howard L. Cheney
F. E. Davidson
Irving K. Pond
Alfred H. Granger
Henry K. Holsman
Hermann V. von Holst
Richard E. Schmidt
Howard Van Doren Shaw
Ralph Corson Llewellyn
Chester H. Walcott

Cincinnati

Stanley Matthews
Frederick G. Mueller
Harry M. Price

Cleveland

Charles W. Hopkinson
Wm. A. Bohnard
Albert E. Skeel
Charles Morris
Chas. S. Schneider
Philip Lindsley Small
John F. Suppes

Colorado

Harry W. J. Edbrooke
W. E. Fisher
G. Meredith Musick
Thiemann R. Wieger

Columbus

Chas. St. John Chubb, Jr.
Orlando C. Miller
Clarence Earl Richards

Connecticut

H. Story Granger
Clark J. Lawrence
Delbert K. Perry

Dayton, O.

Peter M. Hulsken
Harry Irvin Schenck
Harry J. Williams

Florida

Harry Francis Cunningham
H. J. Klutho
Gerald J. O'Reilly

Georgia

A. Ten Eyck Brown
Flippen David Burge
A. Neal Robinson

Grand Rapids

Henry H. Turner

Indiana

Herbert W. Foltz
Merritt Harrison

Iowa

William L. Steele
William J. Brown

Kansas

Goldwin Goldsmith
Paul Weigel

Kansas City

Ernest Brostrom
Edward Buehler Delk
Jesse F. Lauck
Walter C. Root

Kentucky

J. C. Murphy
Ossian P. Ward
Hermann Wischmeyer

Louisiana

Charles R. Armstrong
Ira Calvin Carter
M. H. Goldstein
Francis J. MacDonnell

Michigan

H. J. Maxwell Grylls
C. K. Bell
Charles Crombie
Alvin E. Harley
Walter R. Meier

Thanks to the Ladies

The Ladies' Hostess Committee on the boat ride was headed by Mrs. Robert D. Kohn, assisted by Mrs. Charles Butler, Mrs. Frank Holden and Miss Katherine Budd.

The Hostess Committee at the luncheon consisted of Mrs. Julian Clarence Levi, Chairman; Mrs. Harvey W. Corbett, Mrs. Burt L. Fenner, Mrs. Grosvenor Atterbury, Mrs. Charles H. Higgins, Mrs. Robert D. Kohn, Mrs. F. Livingston Pell, Mrs. Stowe Phelps, Mrs. D. Everett Waid, Mrs. Edgerton Swartout and Mrs. Charles Butler.

The Architectural Press at the Palace

The A. I. A. Journal, the official organ of the Institute is located in Booth No. 115, where all Institute members and visitors are cordially invited to call.

The American Architect is located in Booth No. 130.

Architecture is located in Booth No. 133.

The Architectural Record is located in Booth No. 305.

Pencil Points is located in Booth No. 363.

The Architectural Forum is located in Booth No. 148.

An Exhibition of Foreign Photographs has been specially arranged for Convention visitors at the Forum's office, 383 Madison Avenue, which all architects and friends are invited to view at any time.

Competition for Small Structolite Concrete Houses and Bungalows

REPORT OF THE JURY OF AWARD

AN unusual number of drawings were submitted in the U. S. Gypsum Co. competition,—some 600 in all. This was partly due to the fact that competitors could submit designs in both classes of houses included in the competition.

In the opinion of the jury, the general standard of the designs submitted was unusually high. Particularly noticeable were the interesting and attractive presentation of the problem and the excellence of the draftsmanship found in a majority of the drawings. In comparison with those submitted in a competition for a small face brick house five years ago, it is evident that much progress has been made in recent years by our younger architects and draftsmen. This very general and marked improvement in the quality of the design and the character of the draftsmanship is undoubtedly due in large part to the greatly increased number of architectural schools and night ateliers now open to draftsmen and students of architecture all over the country. The standard of rendering in pen and ink, as evidenced by these drawings, has improved enormously during the last few years.

First Prize Design: Six-Room, Two-Story Dwelling. John Floyd Yewell, New York. This design combines practically all of the features the jury felt to be necessary to a complete and logical solution of the problem. The plan is compact and well arranged. The design, which fulfills every requirement of the program, possesses an excellent cottage character. The presentation itself is well composed as to surroundings and is superlative in execution.

First Prize Design: Five-Room Bungalow. Angelo De Sousa, Berkeley, California. A charming presentation of a well designed plan and agreeable massing of elements. This shows the English cottage, done as it should be but seldom is.

Second Prize Design: Six-Room, Two-Story Dwelling. Howard S. Richmond, Los Angeles. This design shows good character for a tropical climate, and the presentation of the chosen atmosphere and surroundings is excellent. Perhaps the flight of steps is rather large and important for so small a house, although this feature can hardly be severely criticized, as an ample flight of stone or tile steps is often an adjunct of a building in this style of architecture.

Second Prize Design: Five-Room Bungalow. Harrison Clarke, Los Angeles. The Spanish tradition is here found arrayed in New England clothing as it were, combining the advantages of each. In this case we do not object to the porch being on the front, since it is given privacy by the enclosing fence, and a pleasing outlook by the garden.

Third Prize Design: Six-Room, Two-Story Dwelling. Howard R. Hutchinson, New York. This is a thoroughly good presentation of a more northern type of architecture, our only criticism being that the porch should be more secluded. Its close proximity to the front door and its location on the front of the house make it practically useless for everyday use. The slight difference in levels between the cornices of the main portion of the house and the living room wing is not sufficiently marked to gain the effect desired, and the fact that the owner's room is situated in the low wing and that there is rather too much area in the halls, are the weak points in this design.

Third Prize Design: Five-Room Bungalow. Albert W. Ford, Anaheim, California. This is an academic presentation of the Spanish style of house, well planned and well composed in all its surroundings, and appropriate in every way for American use.

Fourth Prize Design: Six-Room, Two-Story Dwelling. Angus McD. McSweeney, San Francisco. This is another good southern design, showing an excellent feature in the second floor overhanging gallery, which makes interesting what would otherwise be rather unpromising exterior composition. The enclosed court or garden makes a charming and useful adjunct, but why are all the flower pots in the drawing shown *empty?* The plan is excellent. All the rooms are well shaped and occupy corner positions. Space used for the halls is reduced to a minimum, and the stairs are in proper scale.

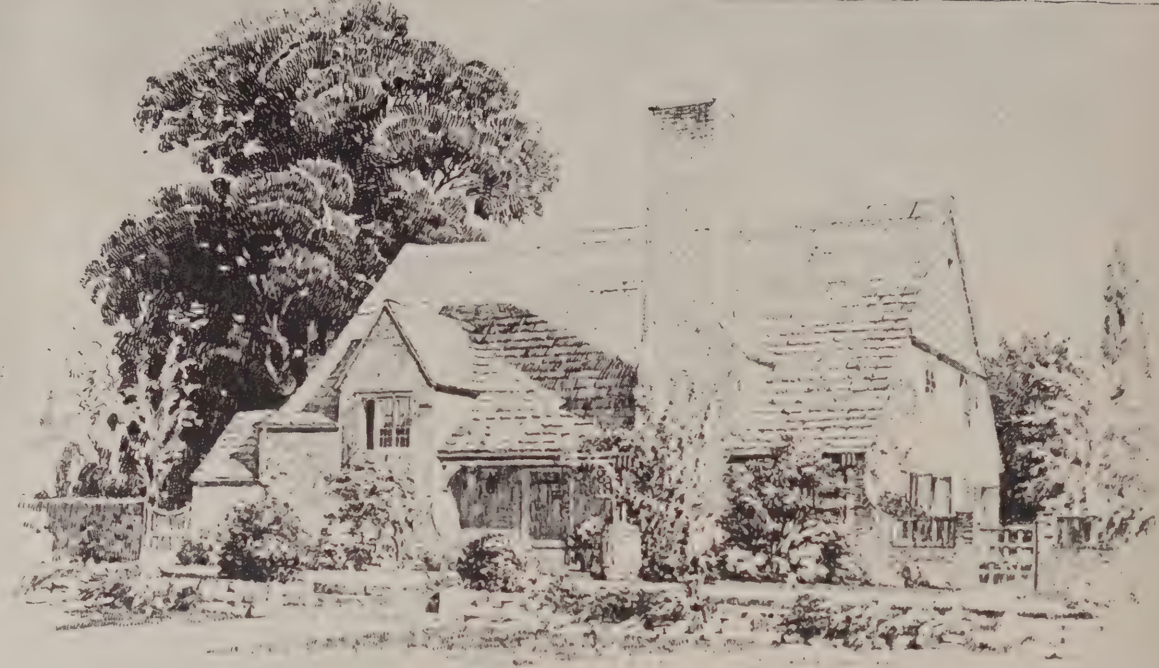
Fourth Prize Design: Five-Room Bungalow. P. Donald Horgan, Chicago. This design shows the distinction of simplicity of mass and the restfulness of unbroken, well proportioned wall spaces. The plan deserves particular mention for the way in which, in so small a house, the bedrooms are well separated from the kitchen.

MENTION DESIGNS: Six-Room, Two-Story Dwellings
Harry and Hazel S. Brodsky, Pleasantville, N. Y.
Fred H. Elswick, Ashland, Ky.
A. B. Gallion, Chicago.
Clarence Jahn, Milwaukee.
C. W. Lemmon, Los Angeles.
Charles Mink, New York.
Daniel Neilinger, New York.
Edward D. Pierre and Richard E. Bishop, Indianapolis.
Thomas B. Temple and Charles H. Koop, New York.
Walter W. Wefferling, New York.

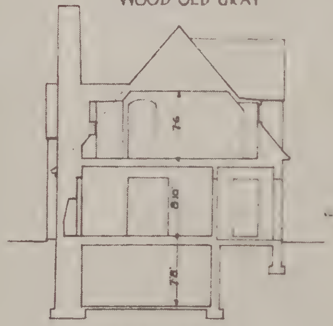
MENTION DESIGNS: Five-Room Bungalows
Will Rice Amon, New York.
Harry and Hazel S. Brodsky, Pleasantville, N. Y.
R. M. Eskill, Sacramento, Cal.
William A. Glasgow, Los Angeles.
Elmer E. Nieman, Colorado Springs, Colo.
W. Pell Pulis, Boston.
Bruce Rabenold, New York.
John J. Regan, New York.
William M. Stryker, Los Angeles.
H. Ross Wigg, New York.

JURY OF AWARD
Dwight James Baum, New York.
Edwin H. Brown, Minneapolis.
E. Ellis Jackson, Providence.
William T. Warren, Birmingham, Ala.
Julian Peabody, New York, *Chairman.*

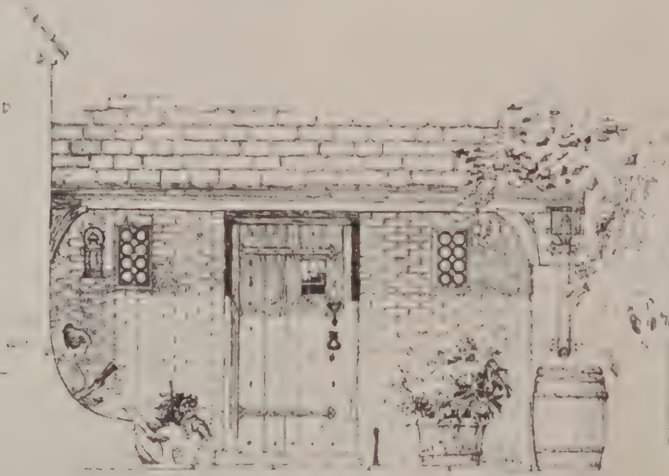
All drawings are being held pending selection of those to be published.



ROOF, MIXED SLATE
BRICK, BROWN PURPLE RED
WOOD OLD GRAY



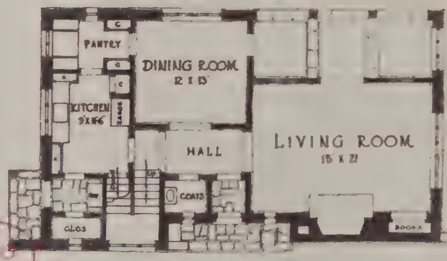
SECTION



DETAIL OF ENTRANCE

SCALE

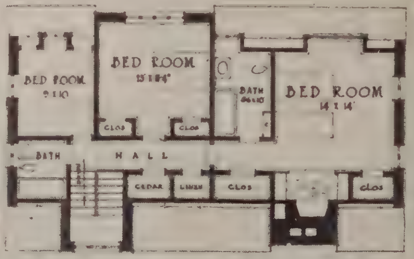
· CUBAGE ·		
MAIN HOUSE		
	24 X 46 X 24	26496
STAIR PROJECTION		
	3 X 8 X 22	528
	3 X 6 X 17	308
CHIMNEY		
	2 X 17 X 17	578
	2 X 6 X 18	216
REAR BAY		
	6 X 14 X 6	504
DORMERS		60
ENTRY PORCH		61
		28749
DEDUCTION FOR UNEXCAVATED AREA		1078
TOTAL CUBAGE		27.671



FIRST FLOOR PLAN

SUBMITTED BY

SCALE FOR PLANS



SECOND FLOOR PLAN

DESIGN: FOR: A: SIX: ROOM: STRUCTOLITE: CONCRETE HOUSE

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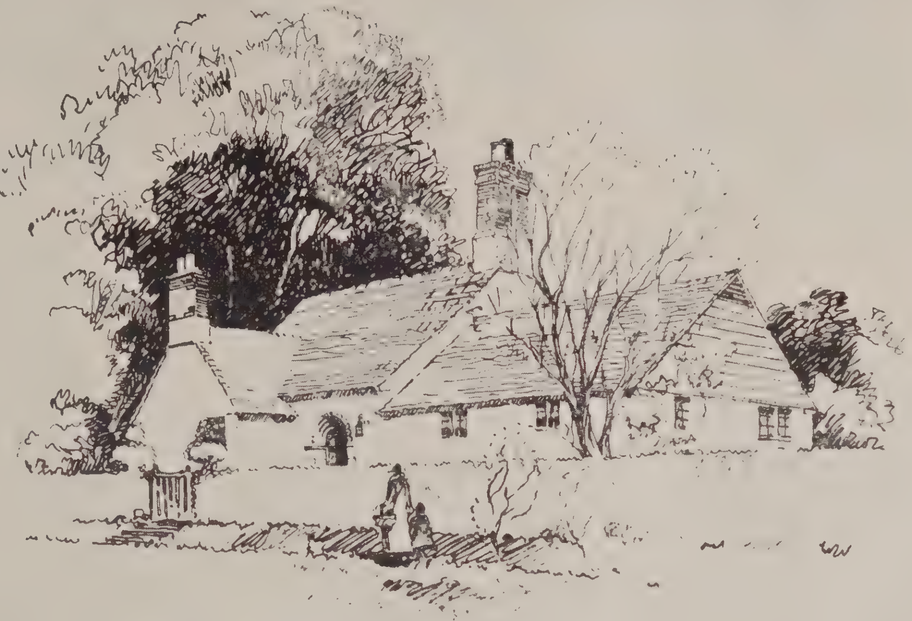
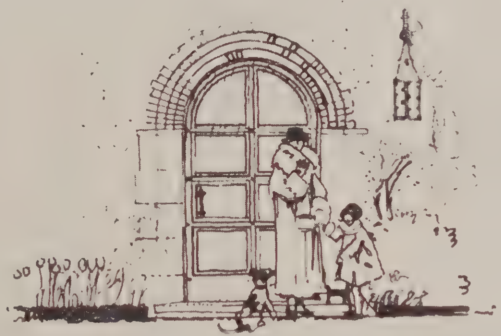
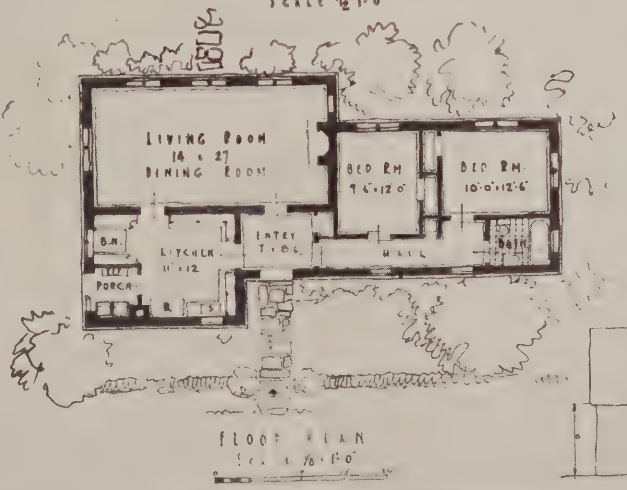
FIRST PRIZE DESIGN: SIX-ROOM HOUSE
SUBMITTED BY JOHN FLOYD YEWELL, NEW YORK





ENTRANCE DOOR
SCALE ½" 1'-0"

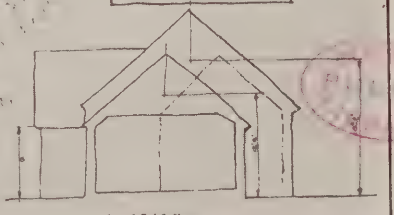
NOTES.
STRUCTOLITE WALLS AND FLOORS, PARTITIONS, ROOF CONSTRUCTION, ETC.
WHITE ORIENTAL STUCCO FOR EXTERIOR WALLS, ROUGH TROWELLED.
SHINGLE ROOF WEATHERED GRAY LAID IRREGULARLY.
SASH AND DOORS TO BE BLUE GREEN.
ENTRANCE DOORWAY BRICK AND STONE.



FLOOR PLAN
SCALE ⅛" 1'-0"

CUBAGE.

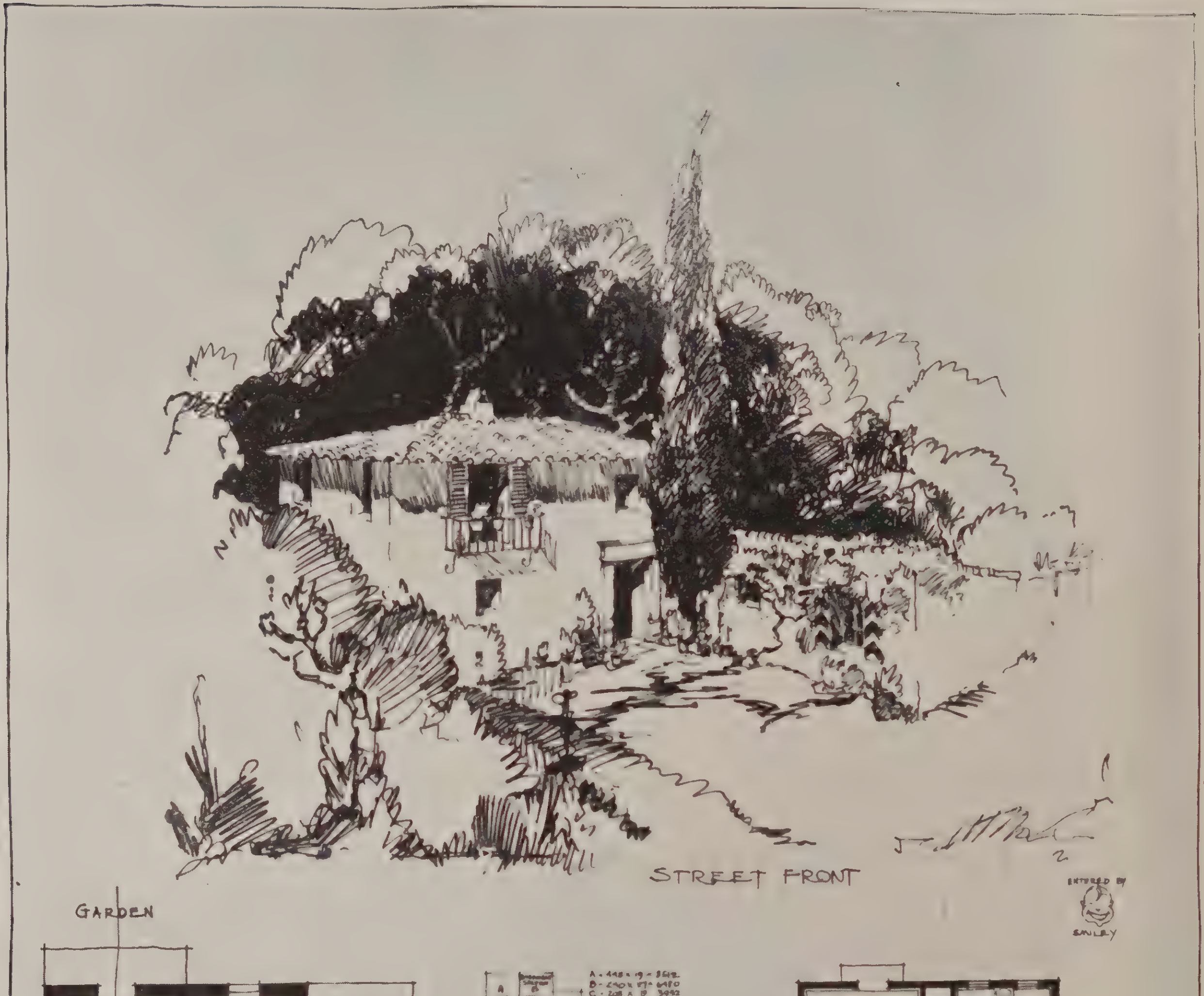
A. 29×25×16 =	11600
B. 25'6"×18×12'6" =	5736
C. 5'6"×19×12'6" =	1307
TOTAL	18643
COST @ 50¢	$9321.50



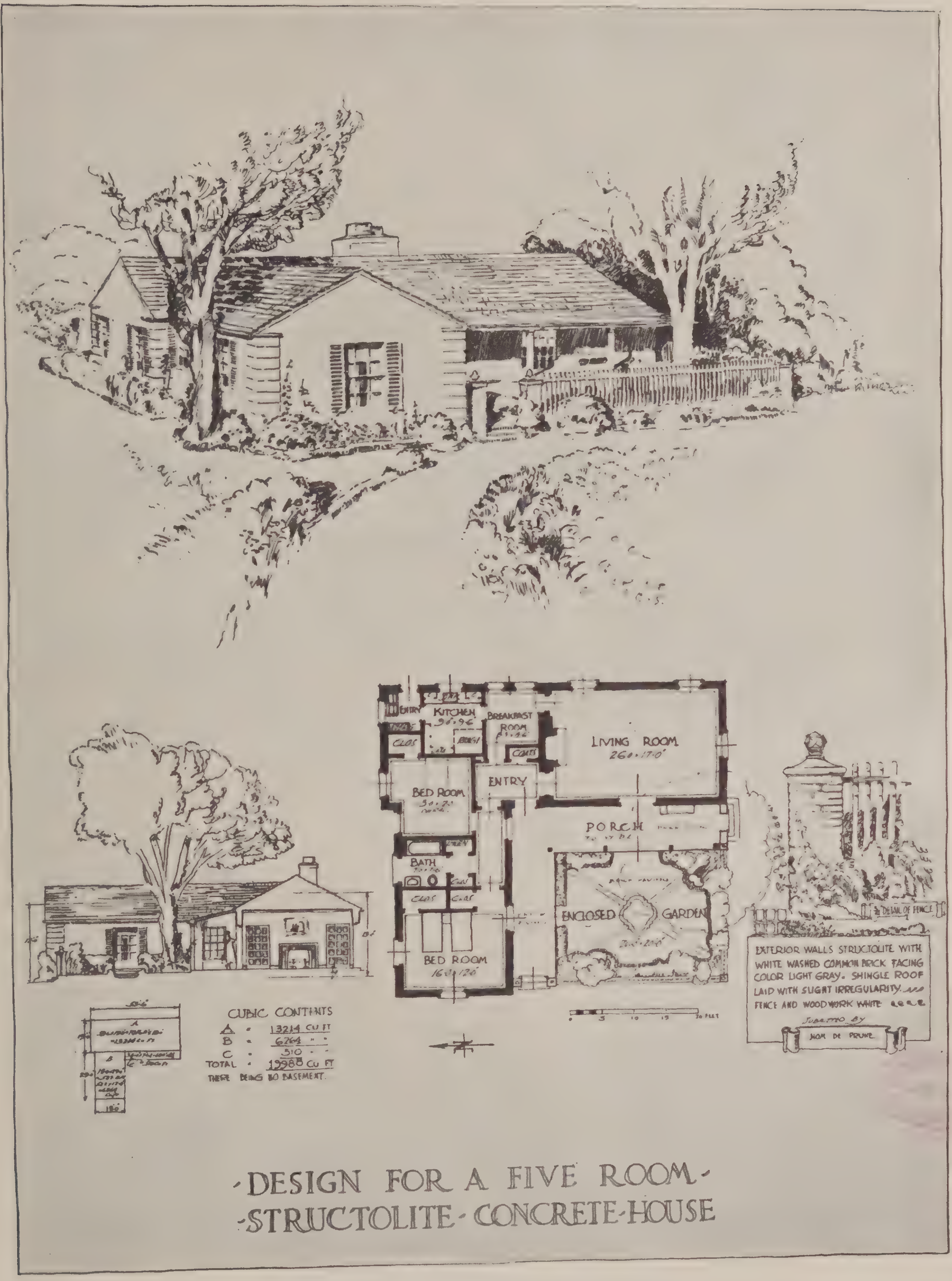
SECTION.

DESIGN · FOR · A · FIVE · ROOM · STRUCTOLITE · CONCRETE · BUNGALOW

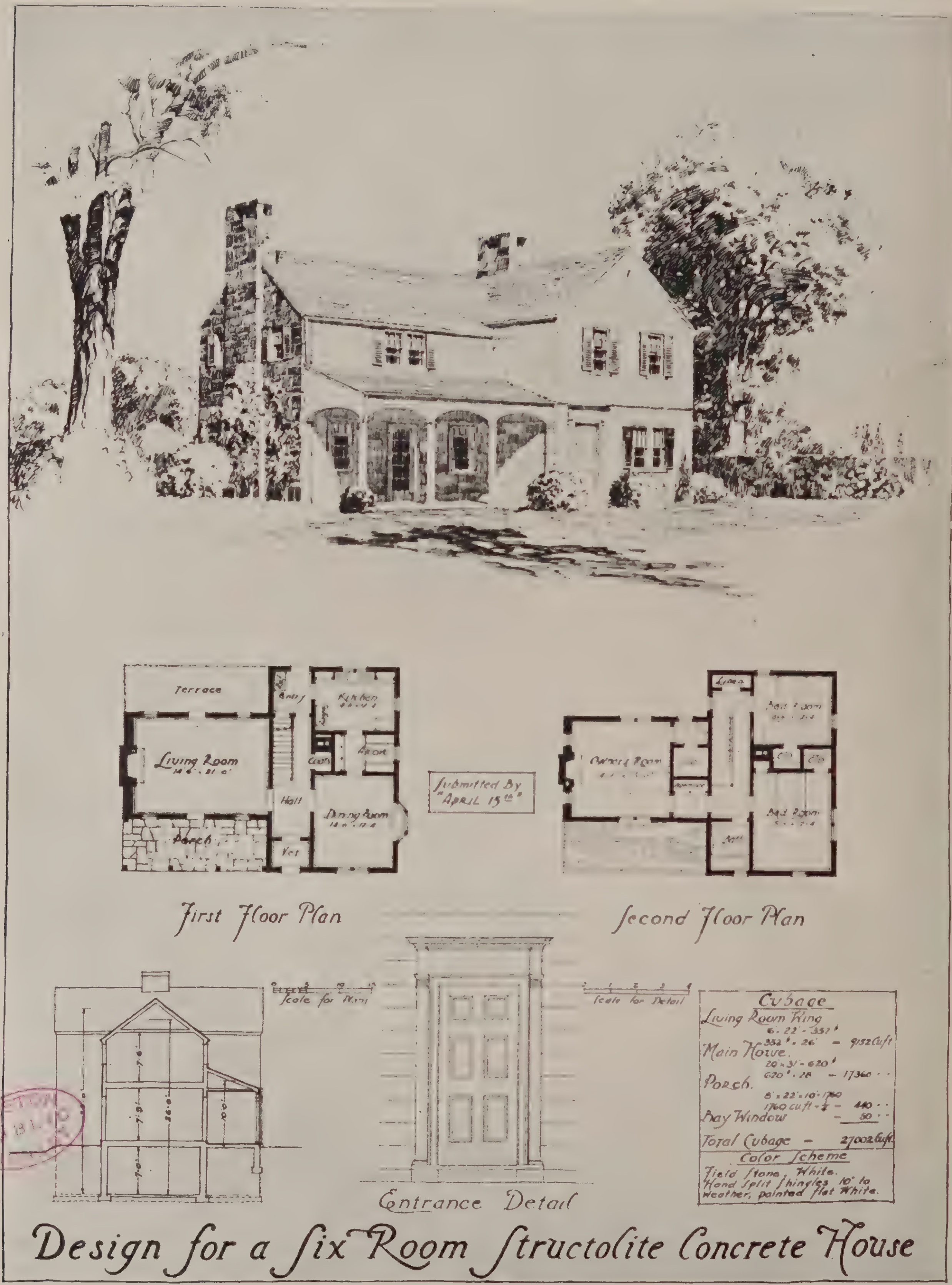
FIRST PRIZE DESIGN: FIVE-ROOM BUNGALOW
SUBMITTED BY ANGELO DE SOUSA, BERKELEY, CAL.



SECOND PRIZE DESIGN: SIX-ROOM HOUSE
SUBMITTED BY HOWARD S. RICHMOND, LOS ANGELES



SECOND PRIZE DESIGN: FIVE-ROOM BUNGALOW
SUBMITTED BY HARRISON CLARKE, LOS ANGELES



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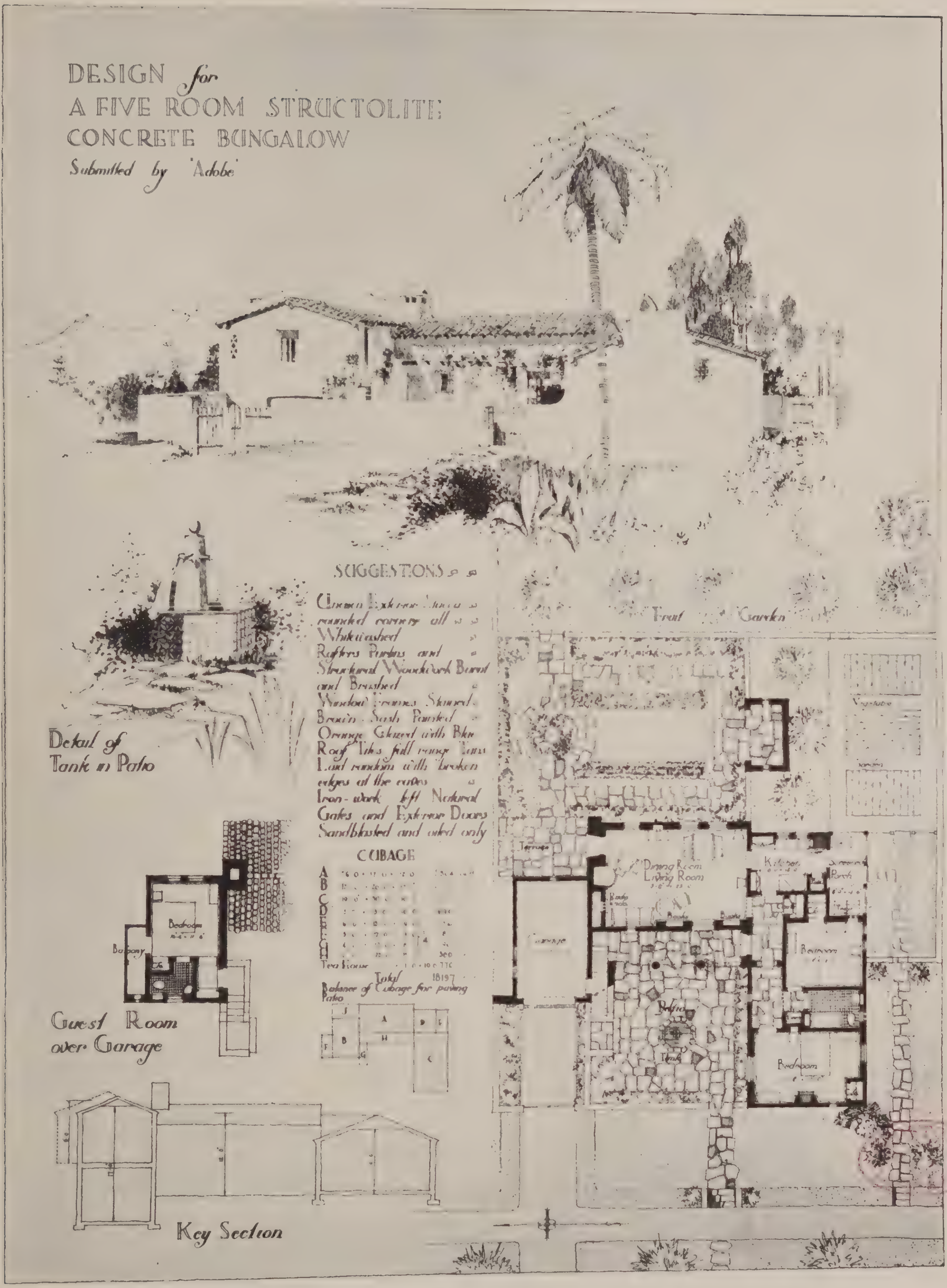
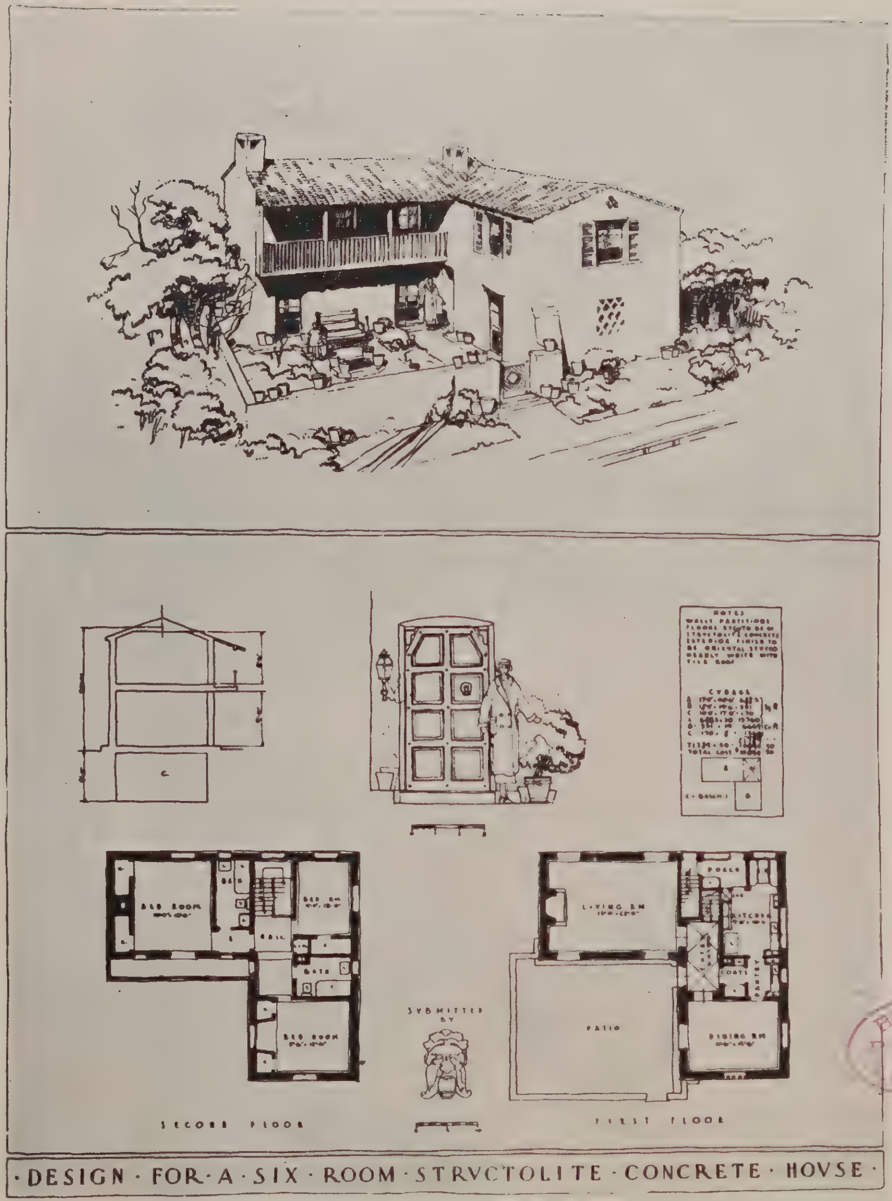
THIRD PRIZE DESIGN: SIX-ROOM HOUSE
SUBMITTED BY HOWARD R. HUTCHINSON, NEW YORK


DESIGN for
A FIVE ROOM STRUCTOLITE
CONCRETE BUNGALOW
Submitted by 'Adobe'
SUGGESTIONS
Cream Exterior Stucco rounded corners all Whitewashed
Rafters Purlins and Structural Woodwork Burnt and Brushed
Window Frames Stained Brown Sash Painted Orange Glazed with Blue
Roof Tiles full range Tans Laid random with broken edges at the eaves
Iron-work left Natural
Gates and Exterior Doors Sandblasted and oiled only
CUBAGE
A
B
C
D
E
F
G
H
Tea House
Total 18197
Balance of Cubage for paving Patio
J
A
D
E
F
B
H
G
C
Detail of Tank in Patio
Bedroom
Balcony
Guest Room over Garage
Key Section
Fruit Garden
Terrace
Dining Room
Living Room
Kitchen
Screened Porch
Garage
Patio
Tank
Bedroom
Bedroom

THIRD PRIZE DESIGN: FIVE-ROOM BUNGALOW
SUBMITTED BY ALBERT W. FORD, ANAHEIM, CAL.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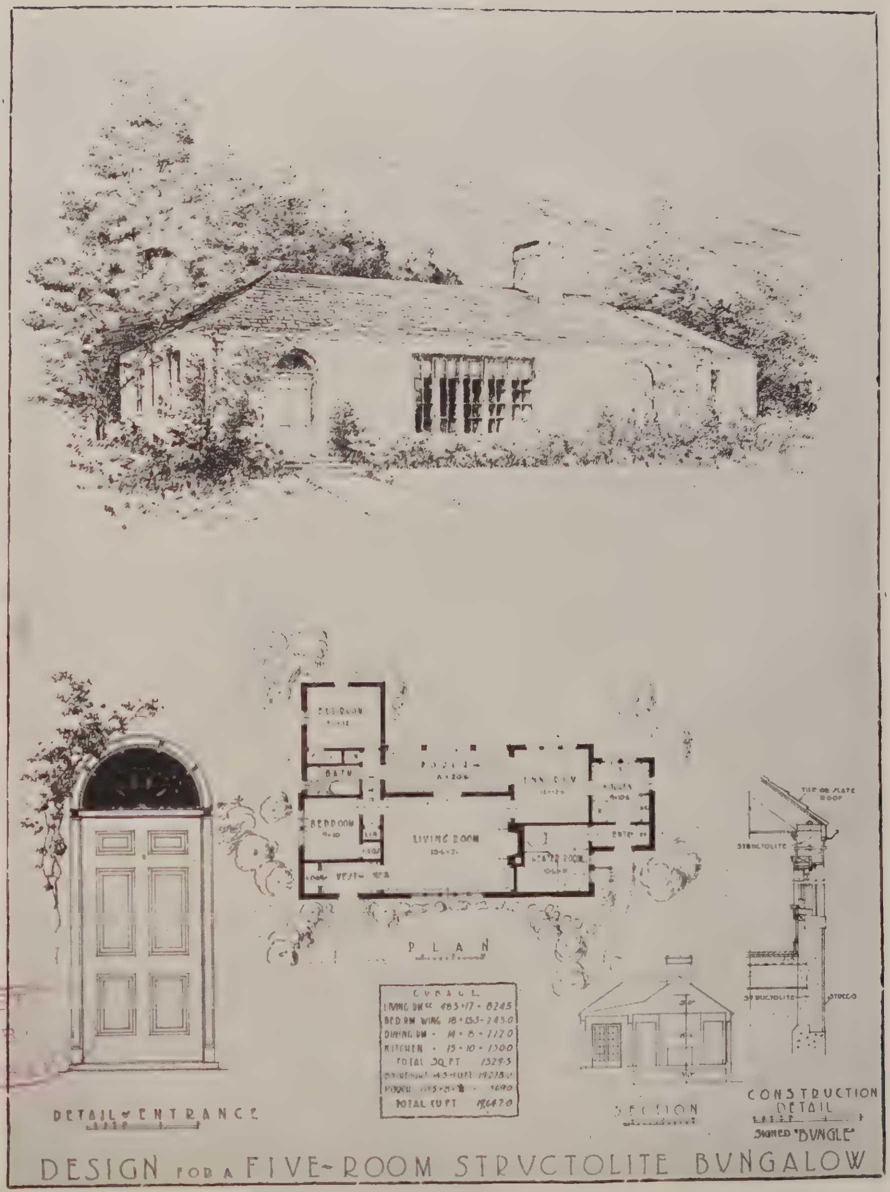
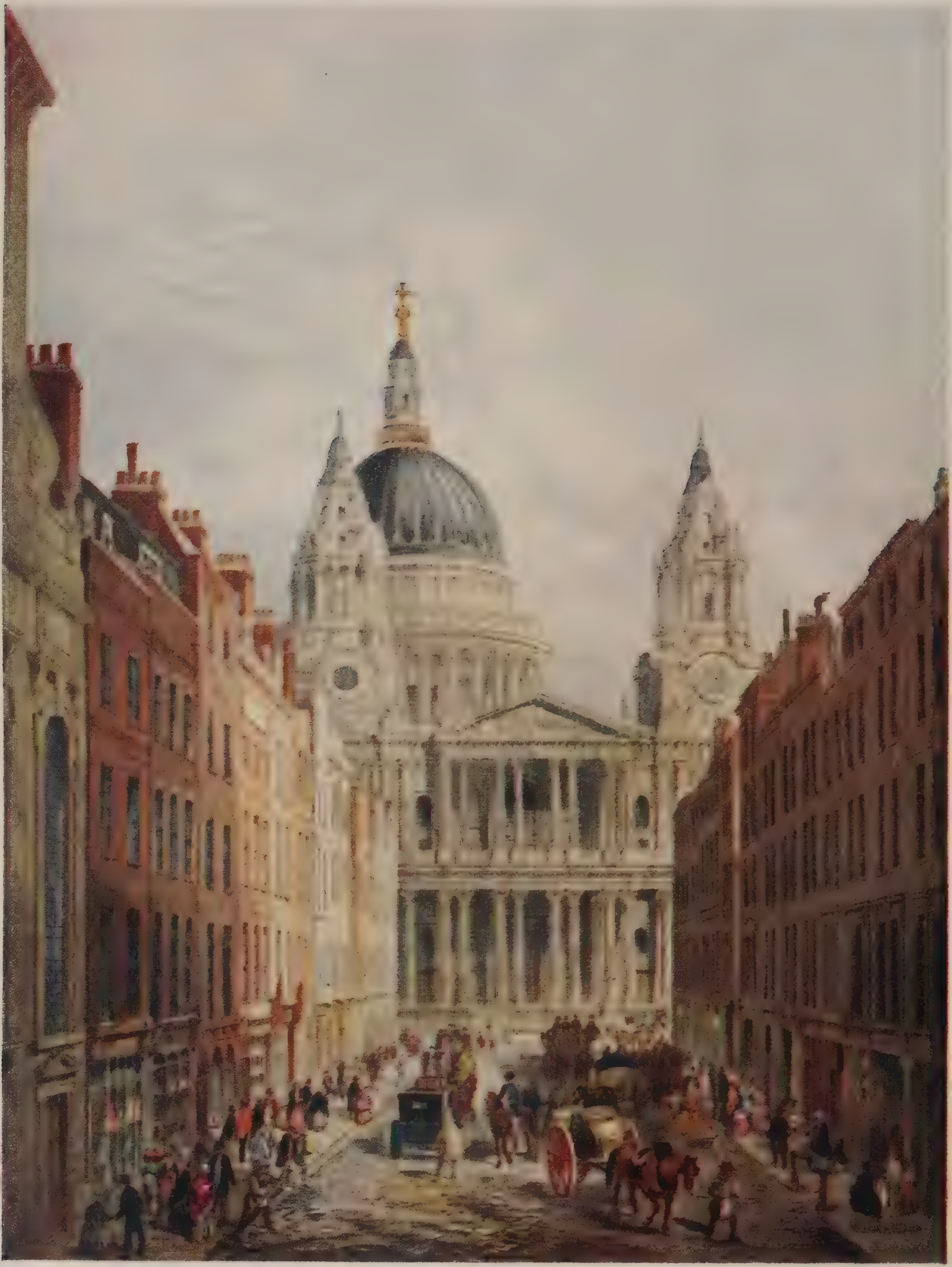
FOURTH PRIZE DESIGN: SIX-ROOM HOUSE
SUBMITTED BY ANGUS McD. McSWEENEY, SAN FRANCISCO



FOURTH PRIZE DESIGN: FIVE-ROOM BUNGALOW
SUBMITTED BY P. DONALD HORGAN, CHICAGO



ST. PAUL'S CATHEDRAL, LOOKING UP LUDGATE HILL

From a Print Published by Messrs. Lloyd Brothers, London, May 1st, 1852

The St. Paul's Controversy

By A. R. POWYS

IT is difficult for us in England to know whether the architects of America are familiar with the controversy now in progress regarding the condition of St. Paul's Cathedral. It seems, however, that a statement of the facts should be interesting to them, explaining what is a complicated situation.

The dean and chapter constitute the authority responsible for the maintenance of the cathedral which they serve, and this in spite of a general feeling that the great cathedral churches are national buildings in a closer sense than that they were built by Englishmen and stand on English soil. It is, then, quite lawful for any cathedral chapter to decide to remove altogether or alter in any way the building in its charge. Harm has befallen many a cathedral church at the hands of its chapter, harm which proceeds from neglect or from that stupid kind of repair which has come to be recognized by the word "restoration." Architects know of many such instances, in buildings of historic and architectural importance.

From this it will be seen that without the authority of its Dean and Chapter no repairs to St. Paul's can be undertaken, and further that on them rests choice of the means to be employed in the repairs. Attached to the staff of every cathedral and appointed by its dean and chapter is an architect or surveyor, whose duty it is to advise on what works are desirable. In most cases this architect is chosen from among the best known men of the country, yet in some instances he is a comparatively unheard-of person, whose home is in the city and whose life is spent about the cathedral and in caring for the buildings within the precincts of the church. At St. Paul's the surveyor to the cathedral has been for many years Mervyn Macartney. Mr. Macartney is an architect who has a very considerable reputation as an authority on Renaissance buildings in England. He is typically an Englishman, satisfied with traditional methods, slow-moving and safe. He is not a man likely to inaugurate great undertakings or to originate any large scheme for repairs based on engineering methods. During the time he has held office a succession of individuals and commissions have reported, officially and otherwise, on the condition of St. Paul's, and all that time he has been absorbing what they have had to say; he has watched the cathedral, and now he knows it very thoroughly,—probably better than anyone else, the result of experience, which he has acquired during many years.

Before outlining the three important stages in what may be called the Controversy of St. Paul's, it may be well to suggest what the problem to be considered is. The dome rests on eight piers, which in their turn rest on a layer of earth which has a depth of from 4 to 6 feet. In its turn the earth rests on a bed of gravel and sand, which is coarser near the surface, and fine and water-bearing beneath. This bed is some 30 or 35 feet deep and lies on the London clay, over which the subsoil water works its way down to the bed of the Thames, carrying with it, so the authorities say, fine particles of the sand through which it passes. This sand may therefore be held to be "running sand." The mediæval cathedral had its foundation on the same bed as the present building. Each of the eight piers which support the dome is 30 x 9 feet at the level of the nave floor. Those who have calculated the weight of the dome estimate variously the loading of the piers. Sir Frank Baines, whose calculations I prefer to trust, gives them thus: Each pier just above the nave floor takes a mean load of 16.8 tons per foot; at the crypt floor a mean load of about 7.50 tons per foot, and on the earth a mean load of 5.6 tons per foot. None of these figures represents the maximum pressure at some points within the piers and on the earth, since the pressure varies.

None of these loads on the piers is excessive if received by masonry which is built of coursed Portland stone, hard brickwork, or modern cement concrete. Although in theory the loading of the earth is excessive, Mr. Macartney can show that no change has taken place in the levels of the bases of these piers in recent years. But in regard to the piers themselves it must be remembered that they are constructed with faces of Portland stone, the thickness of which varies very considerably from 6 inches upwards, and with a core of rubble laid in lime mortar. And this is not the worst, for the nature of both rubble and mortar is not uniform; in one place both are of good quality, in another one is good and the other bad, and in some parts both rubble and mortar are bad. The rubble stone was undoubtedly taken from the older cathedral. It is in part a kind of limestone known as "Kentish Rag," generally a stone that is little better than hard chalk. Little if any of the rubble appears to have been coursed. Most of it is of a porous nature, and some is liable to decomposition when wet with water. As a result of this poor core, which must have settled considerably when it was setting, the facing stones are so overloaded that they spall and crack. At the renewal of one such cracked stone, its neighbors take an increased load and are actually liable to suffer from immediate fracture. The dome, the great brick core and the drum are comparatively sound; the 32 buttresses, which connect the inner wall with the outer drum, are for the most part fractured, especially those which are above the solid bearing of the piers. There is little doubt that the masonry above the arches of the nave and transepts would have remained sound but for the early movement of the foundations and the condition of the piers, and when once these are sound it will not move again. For the design is excellent, and the equilibrium is assured even without the chains which Sir Christopher Wren placed there to resist thrust. The report of Sir Aston Webb's commission states that changes of temperature are the chief cause of movement of the dome. Such are the actual conditions.

During the years immediately before the World War there was considerable anxiety felt as to the stability of the eight piers supporting the dome, and in about the year 1913 the Dean and Chapter appointed an expert commission to report on the condition of the buildings. Two engineers, Sir F. Fox and Mr. Davidson, and two architects, Mr. Caröe and Mr. Macartney, were appointed. A full examination was made, and the engineers were impressed with the very serious condition of the building; indeed to such an extent was this true that their opinion was generally held to be alarmist. The two architects were less apprehensive. The Dean and Chapter inclined to the opinion of the architects and ordered a careful survey to be made by them of all signs of movement inside and out. Together the architects set to work. Day after day they worked, as often as not being suspended in baskets at great heights, hanging from cornices and balustrades many feet above them. Much data resulted, and the work of repair continued. Cracked stones were drawn out and new inserted. Tons of cement were poured into the masonry, under great pressure or by gravitation alone. The northwest pier had been treated in this way. After the war a second commission under the presidency of Sir Aston Webb was appointed, which has only just rendered its report. Again, and rightly so, the cathedral surveyor was on this board, and together with him was Basil Mott, an engineer who gained his eminent position in the profession through the construction of the underground railways of London. Other members were G. W. Humphreys an engineer, and E. C. Trench. Briefly, the report of this commission recommends that the grouting of the piers on a carefully prepared program, together with the repairs to the stonework, should be proceeded with. It is recommended that this should be done forthwith. The commission expresses the opinion that unless this work be vigorously pressed to a conclusion, the situation may rapidly become grave, followed by irreparable disaster.

About two weeks before this report was issued the District Surveyor for the City of London felt it his duty as a public officer to issue a "dangerous structure notice." This is a document which the law requires him to serve on the owners of a building which has become a menace to the public. Concurrently with the last months of the commission's examination, *The Times* started a fund to pay for the work of repair, to which the public contributed, funds being received from all classes.

It must be remembered that the essence of the commission's report is advice to grout the eight piers supporting the dome and to remove the cracked and broken stones. It is now, under these conditions, that a number of engineers and architects and with them the Society for the Protection of Ancient Buildings, acting in the interests of the public, have felt it necessary to state their opinion that this method is inadequate, and, some even hold, actually dangerous; inadequate, because grouting may not increase the strength of the piers sufficiently. The result of this process will be to leave the masses of mortar and poor rubble embedded between strips and fillets of cement. So embedded the core might stand, but the tireless loads would continue to exert not only direct downward pressure but powerful shearing strains, strains which would be likely not only to reopen the old grout-filled cracks but to tear the poor material away from it, leaving attached to the cement only a thin shell of their substance.

This method of repair is held to be dangerous, because the water from the grout is absorbed by the porous stone and mortar which tend to be decomposed thereby; and the grout, having surrendered a part of its water, does not reach its full strength. In this regard it must not be forgotten that the dust and loose particles of sand and mortar should be washed out before the grout is poured in, as is the usual custom in such operations, for the piers might be too much weakened thereby and the stones and mortar too much saturated. Furthermore, grouting under heavy pressure may be held to be dangerous, for so heavily are the piers already loaded that to increase the pressure in them is to increase the risk. Under these critical conditions grouting under great pressure has been known to blow stones from their positions like shells shot from a cannon. Grouting by gravity only is usually considered inadequate, for it does not completely fill the openings within the piers, and they must be filled to create stability.

To these men and this society it appears that it will eventually be found that the way to make sure of the stability of the dome is to recore the piers with sound material, capable under ordinary building custom of bearing with an adequate margin of safety the loads that come on them; in fact, to make the piers as certainly strong as they would be if built today. To do this it is clear that the dome must be temporarily supported by a combination of steel centering and stanchions. To any man of common sense, it at once becomes obvious that it is desirable to seize the opportunity given by centering to place the eight piers on a concrete bed of much greater area than the present foundations afford, thus securing complete safety forever.

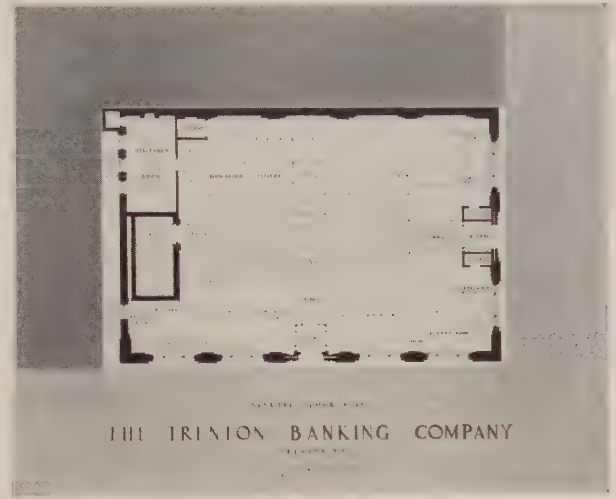
Various schemes have been devised to secure this end. At the time of writing none of the plans has been accepted by the Dean and Chapter, but public opinion is so strong and so emphatically demands that what is done must leave no room for doubt that it is hardly possible to believe that some such course will not be adopted to save this historic building.

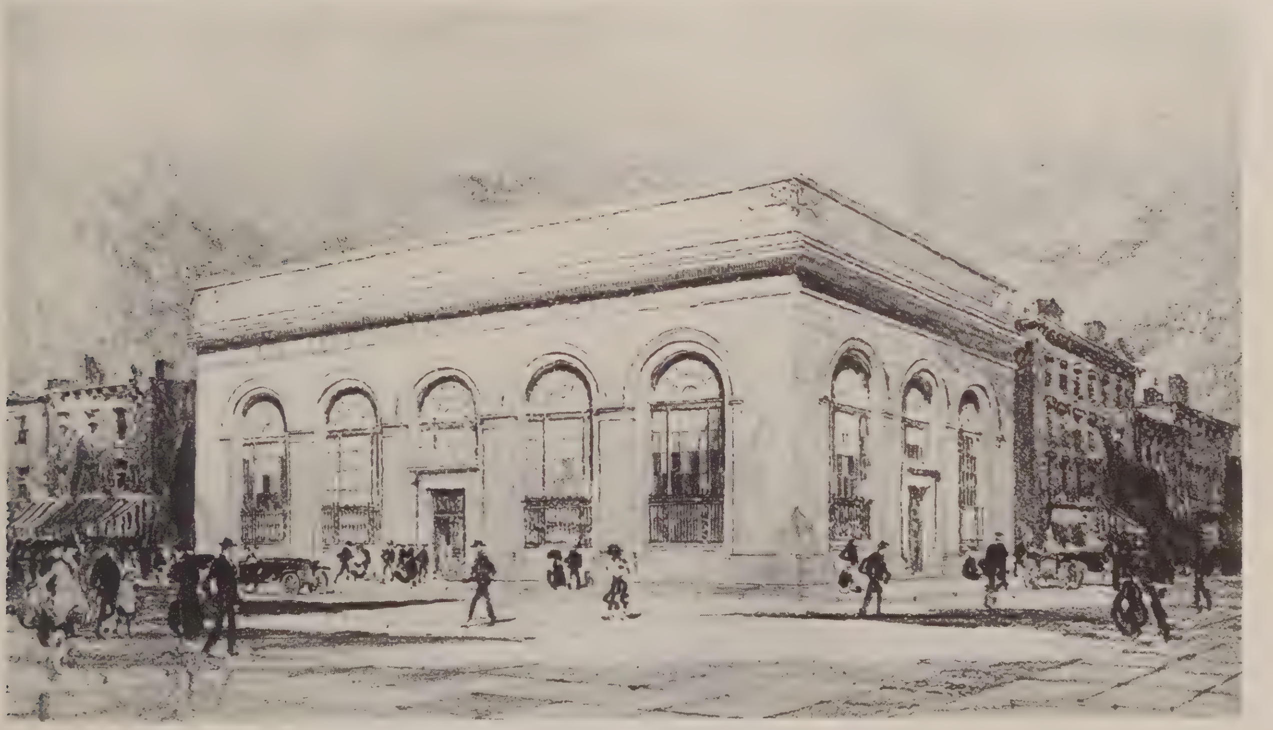
Six Modern Bank Buildings

DENNISON & HIRONS, Architects

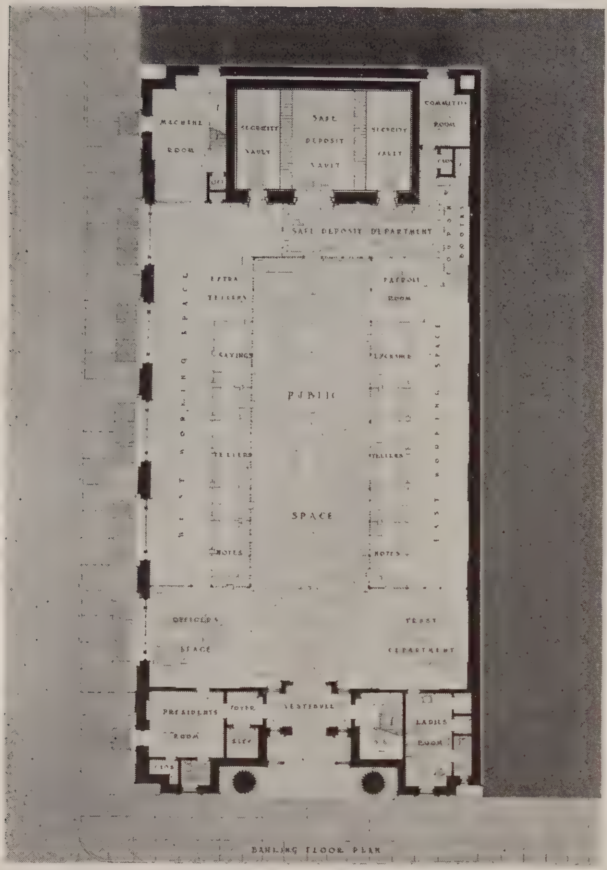
IN the phenomenal development of architecture in the United States during the past 25 years, no type of design has received more serious study or achieved greater success in its solution than the individual bank building. Both in beauty of exterior treatment and in its interior arrangement, the modern bank equals in architectural importance the towering office building and the monumental municipal structure. The bank has reached a high standard.

Among several well known architectural firms specializing in this type of building, Dennison & Hirons occupy an enviable position. Six of the many banks designed by this firm during the past 15 years have been selected to illustrate a variety of successful solutions of this problem. The delightful pencil renderings of these buildings tell their own story of dignified and monumental exterior treatment, while a study of the plans will show in each case a logical and practical arrangement of the banking floor. One's first impression is that the plans are similar in arrangement. This is due to the fact that modern bankers have learned through experience the best locations for the various departments of their institutions. It is the consensus of opinion that in all national banks and trust companies the center of the banking floor should be devoted to the public. This arrangement allows the various wickets of the receiving and paying tellers to be grouped along the sides of the public space. The location of rooms required for the officers of the bank, committee, directors' and women's departments, varies somewhat according to the preference of each individual banker. One advantage of this type of plan, in which the public area is located in the center, is that the working space and the various offices can have outside light, unless a building is located in the middle of a block. Skylights are commonly used to provide additional light for the center of a banking floor, especially where only one side of the building has windows. Light is so important a factor in the success of a banking





Building of the Trenton Banking Co., Trenton, N. J.

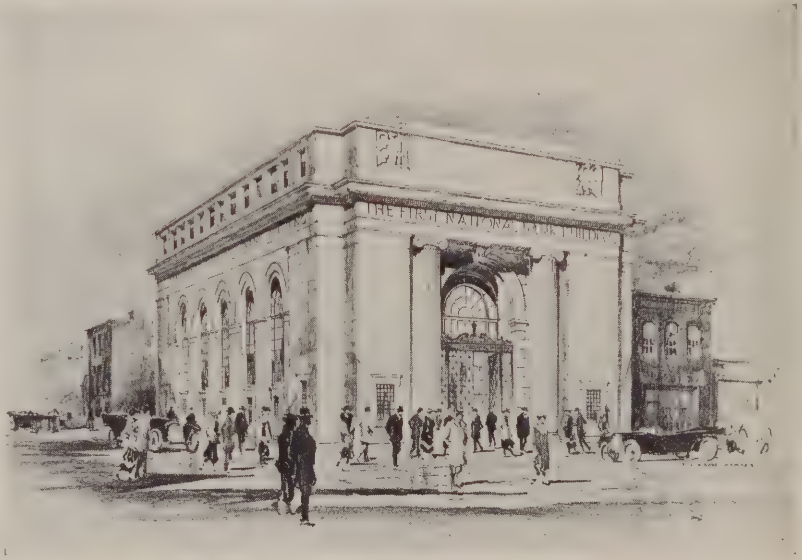


Plan of The First National Bank

room that corner locations are selected whenever possible. Banks in the smaller cities and towns are more fortunate in this respect than similar institutions in the large cities, where corner lots are often unavailable or far too costly. A location at the meeting of two streets gives an unusual opportunity for outside light on two sides, as may be judged by examination of the interesting plans of the Essex County Trust Company's building at East Orange, N. J., and the Union Market National Bank at Watertown, Mass. A department usually located at the rear of the main floor in the smaller city banks is the safe deposit department. Twenty years ago it was an accepted custom to place this department in the basement of the building, but greater accessibility of this department has always been accompanied by greater patronage. Today a safe deposit department is practically never located in the basement of a bank if it can be avoided.

To consider briefly the salient features of the banks illustrated in this article, the plan of the Trenton Banking Company's building is particularly interesting, not only because it occupies a prominent location, but also because there are entrances from two streets into an oblong banking room lighted on two sides. The exterior of this building is designed in a style of the Renaissance and is executed in white marble. The four walls surrounding the large open banking room are lighted by eight large windows located on two sides and by a ceiling light. The architectural treatment of the entire building, both exterior and interior, shows an unusual harmony of line and color. The coffered ceiling of the main banking room, the travertine walls and the careful use of different marbles, wood and bronze, give altogether a rich and pleasing effect to the interior. The departments of the bank are grouped around the spacious center public area which connects with entrances on two streets, insuring satisfactory circulation during business hours. The officers of the bank are accessible to the public on account of their convenient location at the right and left of one of the entrances, where a low marble balustrade in Italian style encloses the space reserved for them. A well appointed women's reception room is one of the pleasing and serviceable features of this bank. The vault is conspicuously located at the end of the public lobby, furnishing an excellent example, not only of good mechanical equipment, but of the most modern type of protection. An elevator connection with the basement makes the fireproof storage vaults there located accessible to patrons who wish to store silverware and other bulky valuables.

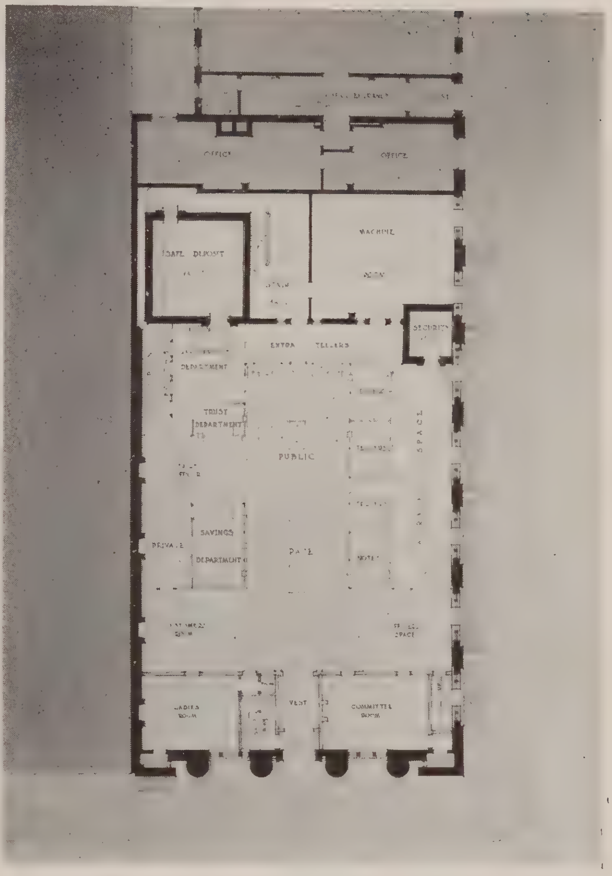
The First National Bank of Blairsville shows a typical oblong plan arranged over a location at the corner of two streets. The length of this building is approximately twice its width, which allows for a somewhat different plan from that developed in the Trenton Banking Company's building, which was also built on a corner lot. The greater length of this building provides more space for the various working departments of the bank. The vault itself, which is divided into three parts, is of unusual size. The center portion of the floor is used for the safe deposit department, which is thus easily accessible



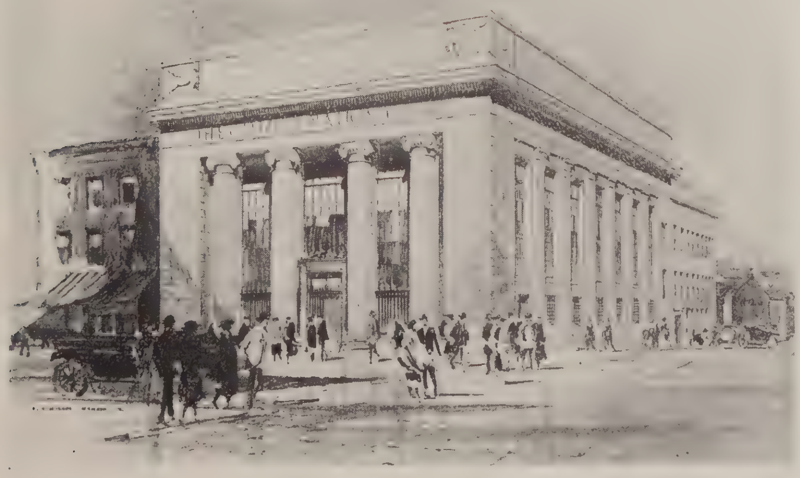
The First National Bank, Blairsville, Pa.

from the public space. The convenient location of this department follows the plan developed for the Trenton Banking Company. The exterior of the building is built of limestone in a severe Classic style, large Ionic columns flanking the entrance door, with an arch above. The banking room, which is 32 feet high, has a flat paneled ceiling, in the center of which is a large skylight. A court-like effect is produced by the use of a mezzanine gallery around three sides of the room, on which are located additional officers' rooms, a large board room, rest room and toilets. Additional working area for future growth of the bank is provided on the third floor, lighted by windows in the frieze at the top of the building. Imitation travertine has been used for the pilasters and screen work in the banking room, and painted plaster for the ceiling and walls. A marble floor covers the public space, while linoleum is used in the working areas. Metal furniture has been employed throughout. Monumental wrought iron gates protect the entrance to the building, which shows a granite base below the limestone walls and large arched windows in which steel frames and sashes are used. The entire building is richly dignified.

The Citizens' National Bank at Waynesburg, Pa., possesses monumental character of high quality. The architecture of banking buildings throughout the country has vastly improved during the past five years, both as to quality of construction as well as of design. In fact it is generally conceded to be of a higher quality than that of other modern buildings erected in our smaller towns and cities to meet the requirements of industrial and commercial growth. As an illustration of this, it is possible to cite the case in Pennsylvania, where throughout the western part of the state particularly many banking buildings have been erected during the past few years which are sure to remain as monuments not likely to go out of fashion,—if one may use the phrase,—because they follow faithfully the best traditions of Classic architecture and because their designers thoroughly understood how to express this tradition in a worthy manner. The best of these banks are designed not as pretentious expressions of wealth but as buildings which will function adequately to meet the definite and exacting requirements of banking institutions, which briefly are: efficiency of operation, comfort and convenience of patrons and employes, and adequate security. This bank at Waynesburg, which is located in the heart of the town, exhibits well studied architectural proportions. Executed in Indiana limestone, the building rises to an approximate height of 50 feet above the sidewalk. Four engaged Ionic columns ornament the entrance facade, while the seven large windows of the side elevation are enframed by flat pilasters equal in height to the columns on the front. Set between the entrance columns, the wrought iron grille, simply designed and solidly constructed, is in keeping with the appearance of strength and security which characterizes the entire design of this admirable building.

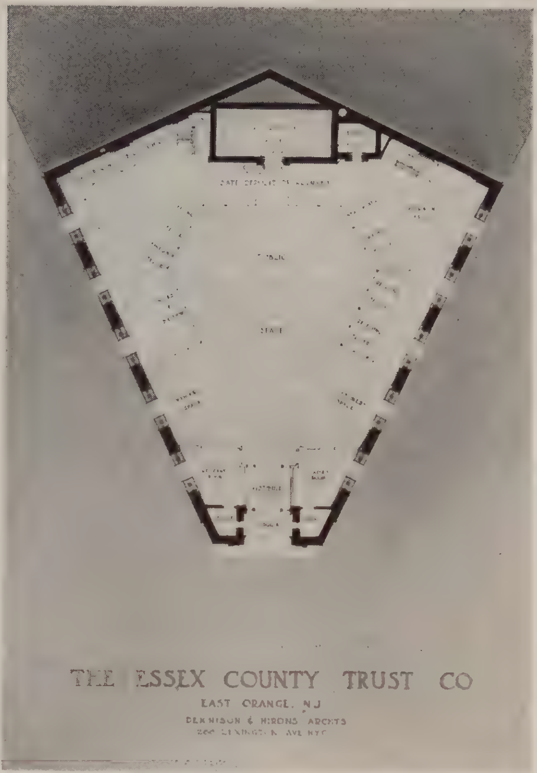


Plan of The Citizens' National Bank

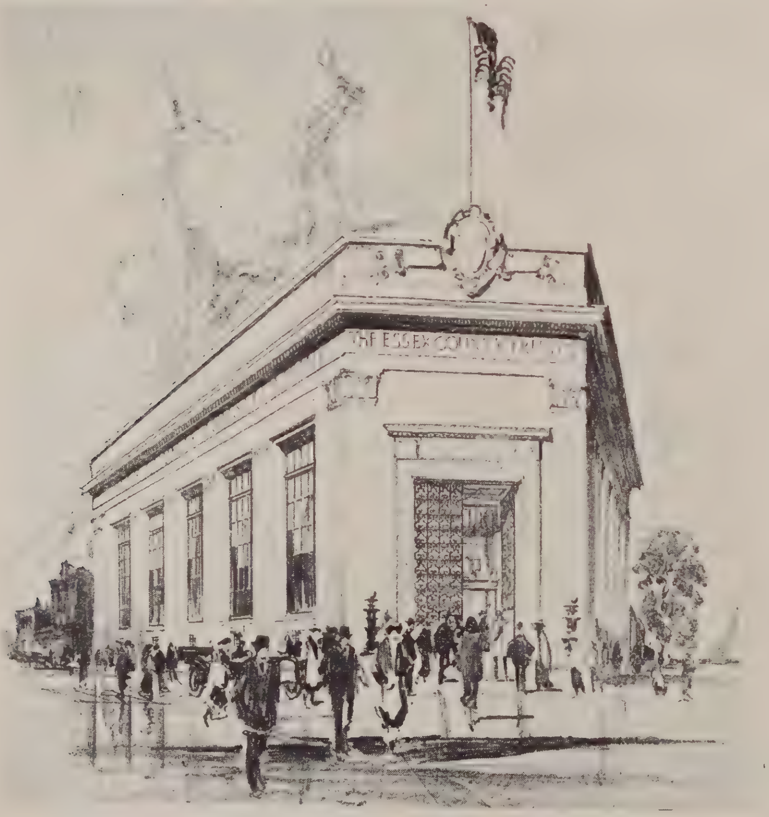


The Citizens' National Bank, Waynesburg, Pa.

The plan is so arranged as to take advantage of the corner plot on which the building is located. The banking room shows the usual central location of public space, flanked

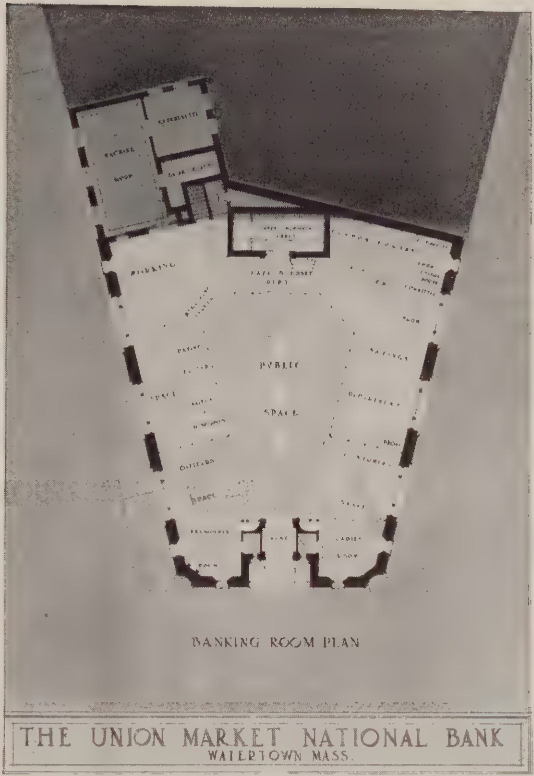


on each side by the various departments of the bank protected by the strong banking screen. Ample accommodation is provided for the officers and customers near the entrance of the bank and outside of the actual banking enclosure. The screen is built of Tavernell marble and statuary bronze. The floors of the public area and the vestibule are of gray Tennessee marble. The walls of the banking room are enriched by a pilaster treatment and by decorative painted panels. The walls throughout are laid up in imitation travertine of a soft, yellowish gray. The ceiling is of plaster and, as usual, it shows a large central skylight. The vaults are planned in a manner somewhat different from the usual arrangement, as the security vault is independent of the safe deposit vault. In some respects this seems an excellent departure from the usual custom in smaller banks of combining storage, safe deposits and securities in one large vault. The purpose of giving each of these departments a separate vault is to provide bookkeepers and tellers with immediate access to the security vault without interfering with the customers visiting the safe deposit vault. Both vaults are of the most modern type of reinforced concrete construction and steel plate linings and are electrically protected. The safe deposit vault has a capacity of about 3,000 boxes. The bookkeepers are placed adjacent to the tellers' cages, an arrangement interesting and unusual. Between the spaces assigned to the bookkeepers' and tellers' cages is a plate glass partition, insuring a measure of privacy and quiet without reducing the amount of general light obtainable in the tellers' cages. These last are furnished with metal furniture and are planned on the unit system, under which each teller is at once a paying and a receiving teller. The floor of the working area throughout is of heavy linoleum, while in the officers' and customers' spaces cork is used. The banking screen is furnished with upward and downward reflectors and with a daylight hold-up alarm station. The basement of this building contains a large community room, boiler room, silver and trunk storage vaults, locker rooms and toilets. Taken as a whole, this bank at Waynesburg is an excellent example of efficiency in modern bank designing, planning and construction.

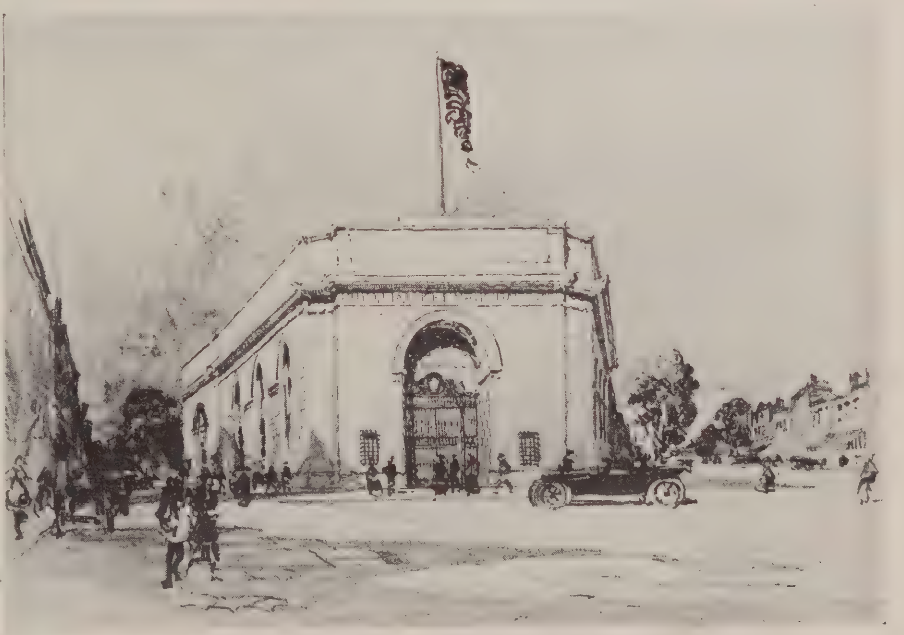


Building of the Essex County Trust Co., East Orange, N. J.

The next two banks to be considered both show use of an interesting "pie-shaped" plan, due to the side of each bank's being located at the junction of two avenues. In plan these two banks are so similar that they may easily be considered together. The Essex County Trust Company's building at East Orange, N. J., occupies a lot broad at the rear and coming almost to a point at the front. In difference of shape only are the plans of these two banks dissimilar. The Union Market National Bank at Watertown, Mass., shows a much broader front at the junction of two streets which do not form quite as high an angle as is the case with the plot of the building in East Orange. Both of these plans show ample central public spaces, and large, centrally located deposit vaults with coupon booths located conveniently. The exteriors are of Indiana limestone supported on granite bases. The buildings set back sufficiently from the streets to permit low planting on the sides and rears. The interiors show banking floors of approximately 45 by 80 feet, with ceilings 35 feet high in the shape of low barrel vaults. Five large and well placed windows break the two sides and walls of each bank, while very monumental and imposing entrance doors in the style of the Italian Renaissance, with beautifully designed wrought iron grille doorways, adorn the narrow ends of the buildings. In the exterior design of the Union Market National Bank at Watertown, round instead of flat arched windows are found. A very elaborate wrought iron grille protects the main entrance to the bank, which here again is located at the narrow end or point of the triangle. The additional width of this entrance end of the building adds much dignity and scale, not only to this entrance facade, but to the entire design of the skillfully planned building.



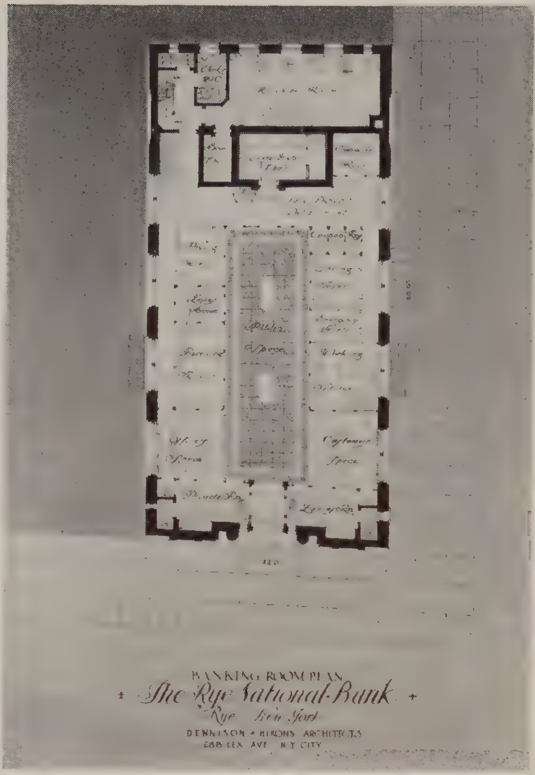
In the Rye National Bank, a free-standing building with light on four sides, there is seen a compact and practical oblong plan, similar in general arrangement to that of the other banks discussed in this article. The large safe deposit vault has one end divided off for a book vault, which opens directly into the bookkeepers' department, often designated as the "machine room," as this is where the various types of bookkeeping machinery are located. All four facades are executed in limestone, showing a dignified design in the Adam style of Georgian architecture, such as is found at Bath. The careful study of the proportions of the various details and parts of the building has produced a design of unusual dignity. The arrangement of the interior of the bank may easily be understood from the plan shown here. As usual, the public area is at the center. The interior also shows Georgian influence, the design being carried out simply in plaster painted a warm gray. Additional interest is given to the design of the room by the vaulted treatment of the ceiling with its penetrations over each of the side windows. Much of the beauty of this vaulted ceiling is due to the fact that it was not necessary to break into its surface with the usual ceiling light. Architectural ornamentation is used as sparingly as possible, with the result that the building possesses unusual dignity, refinement and distinction. The banking screen enclosing the public space is of Italian walnut, wrought iron and glass, a detail simple yet effective; and the warm tone of its woodwork adds much to the inviting quality of the room. This banking screen, as is the case with all of the screens of the banks described in this article, is equipped with upward and downward indirect lighting, giving an abundance of light when required. During the hours of daylight the high arched windows on either side afford excellent light, softened by transparent ecru draperies which harmonize in color with the warm gray of the walls and the gray-green of the terrazzo floor. As a mural decoration at the inner end of the banking room above the vault, the large wall arch is filled in with a decorative map in many soft colors, harmonious

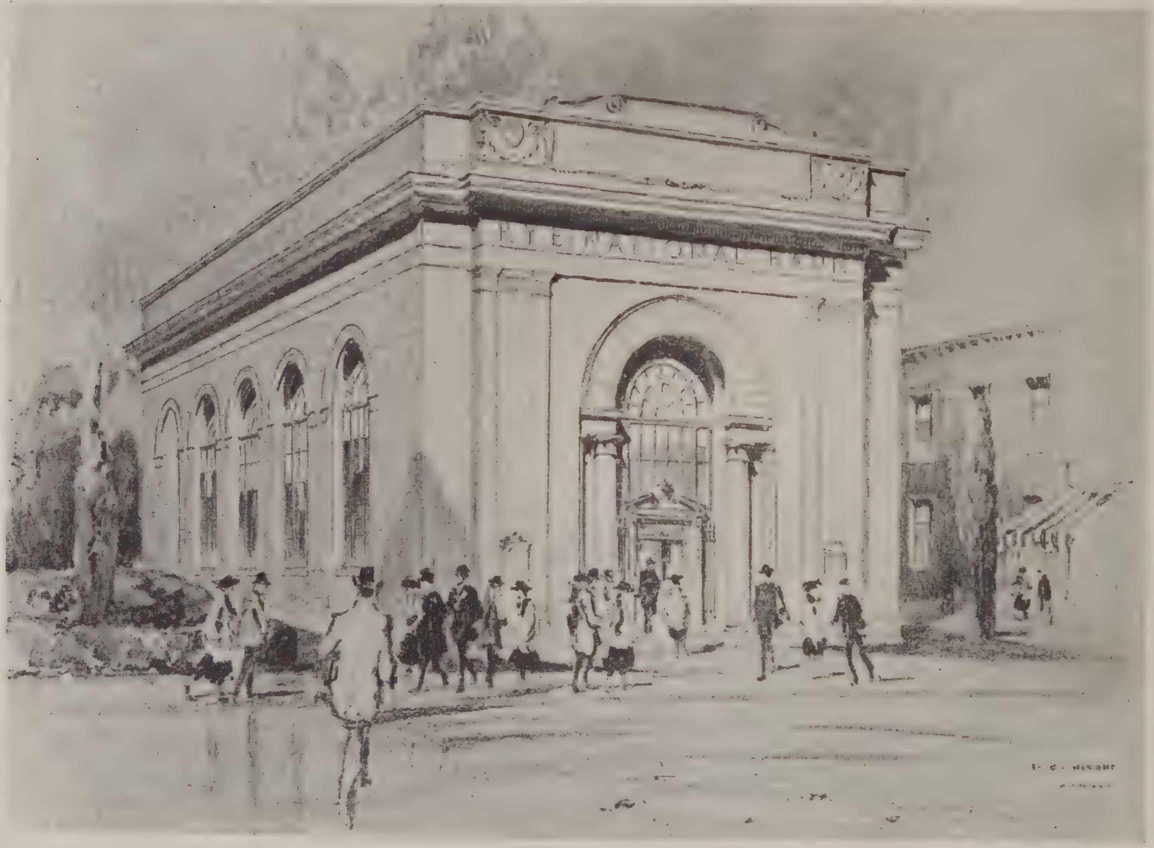

The Union Market National Bank, Watertown, Mass.

with the rest of the room. In making use of this type of mural decoration and in realizing the possibilities offered by a decorative map of the immediate locality, the architects of the bank have succeeded not only in giving an excellent treatment to the walls, but also in keeping alive a certain sentiment for the neighborhood and its history. This type of mural decoration is becoming more and more popular for banking rooms and the offices of large business institutions.

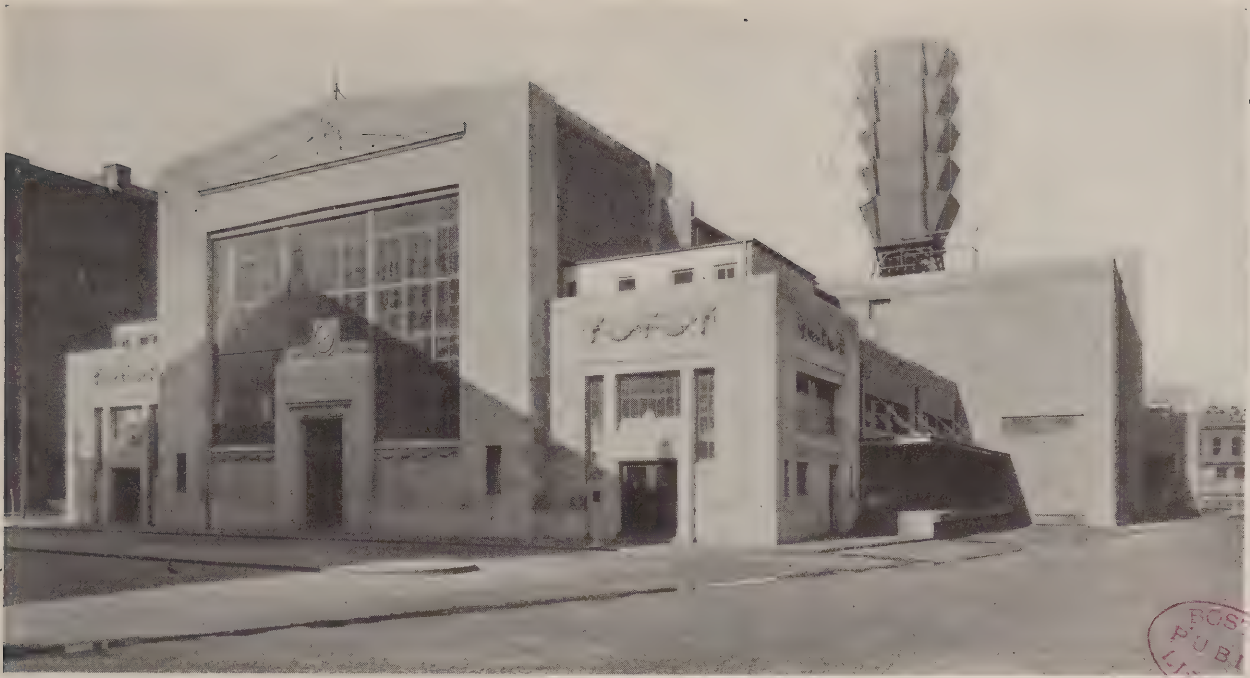
In a recent discussion of this subject, Mr. Dennison said: "It is a fact that practically all bank buildings in our smaller cities are built with an eye to economy. If you are looking for economy, dignity and simplicity, it is quite difficult not to more or less repeat in problems of a similar nature. There is always a chance to depart from the ordinary design by using a roof above the cornice, perhaps of an Italian character, which is generally very successful but is expensive; it costs a lot more money than a flat roof, which we have been obliged to use on practically all our buildings. The designs shown here are in most cases of banks in towns of 50,000 or 75,000. All bankers subscribe to banking periodicals in which every new bank building in the country is published, so the character of a bank has become quite clearly defined in the minds of bankers through a constant study of what is being done by others. Thus when their turns come they usually have very definite ideas of what they want."

The erection of a new banking building is an important undertaking for any bank, and since even with all the economy possible the cost is certain to be great, the architect must make many compromises between what he would like to have and what he can actually obtain. The result is that provision is made, first of all, for the essentials, and beyond securing the necessities it is not always possible to give the building quite the grace the architect might desire.





Rye National Bank, Rye, N. Y.



BOSTON PUBLIC LIBRARY

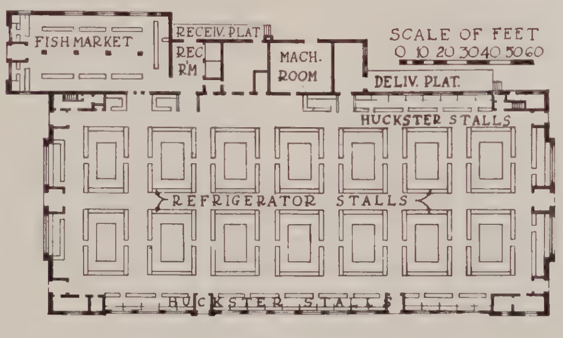
Municipal Market Building, Norfolk, Va.

BENJAMIN F. MITCHELL, Architect

THE modern municipal market building is a logical product of the more enlightened standards of living which have been evolved in the consciousness of the modern community. Discriminating housewives and public caterers manifest increasing intolerance toward the usual type of community market accommodations, such as have been perpetuated without distinct change from the inception of mass marketing up to very recent years. This familiar type of market, with its usual open or closed sheds, wood fittings, unsanitary floors and its heterogeneous collection of ice boxes, counters and show cases, arranged according to the tastes, wares and limitations of the butcher and huckster, has outlived its usefulness and no longer meets the demands of American food buyers and consumers.

The municipal market recently completed for the city of Norfolk, Va. was conceived and designed to overcome, as far as possible, these usual unsatisfactory conditions and to make attractive and visually sanitary the facilities for displaying and marketing food products. The practical ideals of this community are epitomized in the legend that is inscribed above the monumental windows of the building that translates into reality the implied promise: "That pure food may be kept in the best manner and sold at a fair price, this building is erected by the City of Norfolk." These are the market's functions.

The plot, an irregular parallelogram, with an average width of 133 feet and average length of 240 feet, is bounded by streets on all four sides. Physical features for occupancy and service, as determined by appropriate study of possible requirements, are 56 refrigerated stalls, 40 fruit and vegetable stalls, 16 fish stalls, a cold storage department, rooms and platforms for receiving and delivery, and certain auxiliary service rooms. These features are divided into three general groups, and the building is correspondingly arranged in three general sections. The largest section consists of a main hall, with a high ceiling lighted by clerestory windows, and two lower ceiled side aisles, this section being devoted entirely to all food products except fish. The other public section is the fish market, which is located in one corner of the building. The third section is the service division, which embraces the delivery room and platform, machinery rooms, heating and ventilating equipment rooms, elevators, incinerator, receiving room and platform, locker rooms, storage rooms, toilets, and about 900 square feet of subdivided cold storage space on two upper floors,—every possible convenience. An *abattoir* for



Plan

Photos. Acme Photo. Co.

Center Aisle

Side Aisle

killing and dressing of chickens has been provided in this section, so equipped and finished that its odors and steam do not get into the main market, and so arranged that it can be kept reasonably clean and sanitary at all times. The toilet facilities as incorporated are planned to provide public comfort stations for both sexes, white and colored, and are so arranged as to make them accessible from the streets.

The principal market section is planned with stall sections 8 feet deep against the side walls in the low ceiled areas, and with the more lofty central area divided into islands about 23 by 32 feet in size, separated by aisles varying from 6 to 8 feet in width.

All counters and show cases holding food products are enclosed with clear glass and tops of white glass. Vegetable and fruit stalls along the side walls have narrow counters of white glass above the glazed brick barrier, behind which are wide oak display counters. The fish market is planned and equipped in a similar manner, with stalls of approximately 8 feet by 12 feet, and finished with refrigerated show cases, storage boxes and enameled slabs.

The lighting system is designed to produce, as far as possible, the same relative values of light and shadow as are afforded by natural daylight, and a uniform diffusion throughout the building. Indirect lighting is employed exclusively. A brine-circulating system, which supplies cold storage and refrigeration, is operated by a duplex plant of units, consisting of 30-ton compressors directly connected to 2200-volt synchronous motors and accessory brine and water pumps. Condensers and cooling towers are on the roof. Power is purchased on the prime current plan and transformed in the building to 220 volts for small motors and to 110 volts for lighting.

It is believed that the building is rat-proof, except for such as might get in through open doors. The fly problem has been satisfactorily met by a carefully studied scheme of screening the openings, and by the installation of revolving blade fans in the ceiling of each entrance vestibule, which is only 8 feet high. The exterior is of limestone and granite, with bold symbolic ornamentation. Window frames, sash and doors, with few exceptions, are of metal. The interior finish is largely broad surfaces of glazed brick walls, buff in color, enriched with bands of blue and buff terra cotta.

From a financial standpoint the actual operation for more than a year has given corroboration to the original estimates through the success attained. The Norfolk Market presents a practical example of a municipal market built by the city and meeting the needs and tastes of the buying public and the requirements of market merchants, which is at the same time financially self-sustaining as to operating and overhead expenses and to amortization of cost.

Aisle Leading to Fish Market

View of the Fish Market

"Stillington," Estate of Leslie Buswell, Esq., Gloucester, Mass.

ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS

By HAROLD STARK

As it is seen either from the highroad or from the opposite shores of the small neighboring lake, "Stillington" tops a wooded hill overlooking Gloucester harbor. It is built on a plateau of rising terraces, in the architectural mood of timbered Jacobean, prevalent in England when Gloucester was being settled. The terrace walls of fieldstone, the towering brick chimneys, the white plaster facade cut by the solid tracery of the timbering, and the leaded windows are reflected in the waters of the lake below. That reflection embodies the charm as well as the aloofness, the comfortable welcome of an old English home, and the beautiful solemnity of New England woods gone red and yellow in the riot of autumn which follows a vigorous frost.

Photo. Paul J. Weber

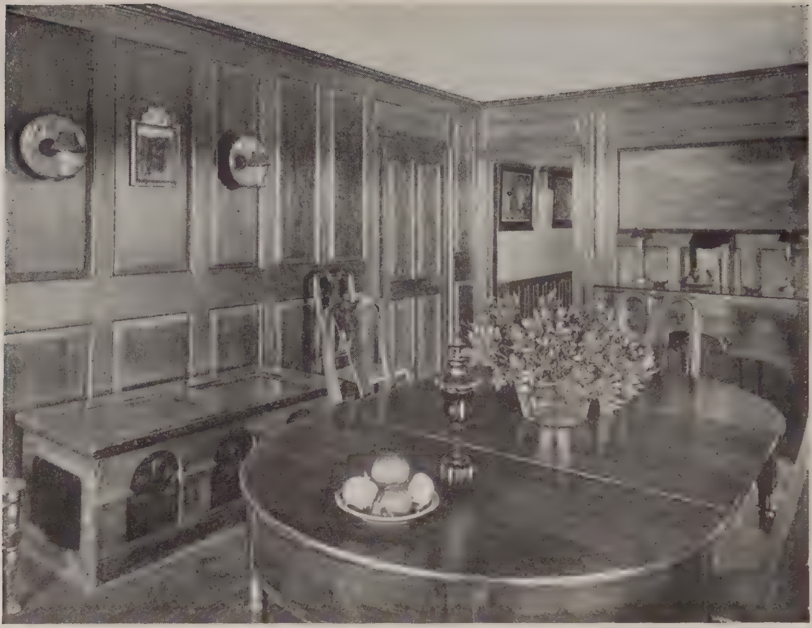
Gate Leading to the Lake

The "Stillington" grounds comprise some 30 acres of wooded land adjoining Ravenswood Park, a stretch of protected woods, given a few years ago to the city of Gloucester. Having its source in the park, and running down a ravine near the house, is the brook, which, by the clever contrivance of a dam and spillway, has been widened into a picturesque lake. The dam was constructed parallel to the highroad. The brook, which once meandered through a flat marshland, was the favorite haunt of the mosquito. After the construction of the dam and the clearing of the marsh, the water backed up and formed a deep lake, mirroring the house and the tall trees. The mosquito was eliminated, and a thing of beauty was added to the neighborhood. A few yards below "Stillington" is Freshwater Cove, into which the overflow from the lake finds its way. In the old days, the fishermen and the ships leaving the harbor stopped in the Cove to stow fresh water from the brook for their voyages. Even today it is a beautiful little bay, where boats are moored, and on its shores stand abandoned fishing huts. The top of the hill, once a rocky plateau, is now converted into green lawns with flowering borders. The lawns are terraced and are supported by walls made from the native stone. Cut into the terrace walls are seats from which one can see the blue harbor, with its sailing vessels plying between Gloucester and the Banks, and beyond Cape Ann, with the open sea farther off.

The problem for the architect was to create a house proper to this *milieu* of woods and lake, and at the same time provide a setting for a most interesting collection of early and rare American furniture, made during many years in Salem, Newburyport, Portsmouth, and other towns around Boston. He was to incorporate into the building paneling and bricks taken from demolished houses of the eighteenth century, many heavy 12-inch beams hewn out a century and a half ago, wide pine floor boards, old doors and corner cupboards. He was to use in those windows giving upon the entrance drive some fifteenth century English glass, long in his client's possession. He was to provide an antique house, and yet retain the convenience of modern domestic mechanism, bathrooms, heating and kitchen appointments. The combination was achieved with admirable success. "Stillington" is an authentic Jacobean house with all of the practical advantages of this century, ancient grace with modern utility of every kind carefully conceded.

The exterior treatment of the brick is interesting. The sympathetic Gothic handling of building materials persisted as a tradition in the vernacular house long after it was lost in the great buildings. Consequently, one is not surprised to find Gothic detail, such as fans, finials, and windows in the Jacobean house. The only way that Gothic came to America was through the Jacobean tradition as it was developed in the early American settlements.

The chimney, towering from a broad base, varies in its texture from a soft, light red to a dark brown; it is narrowed at the second story and terminates in characteristic Tudor angular stacks. The wall space adjacent to the chimney is carried along in brick as far as the door leading in from the terrace.

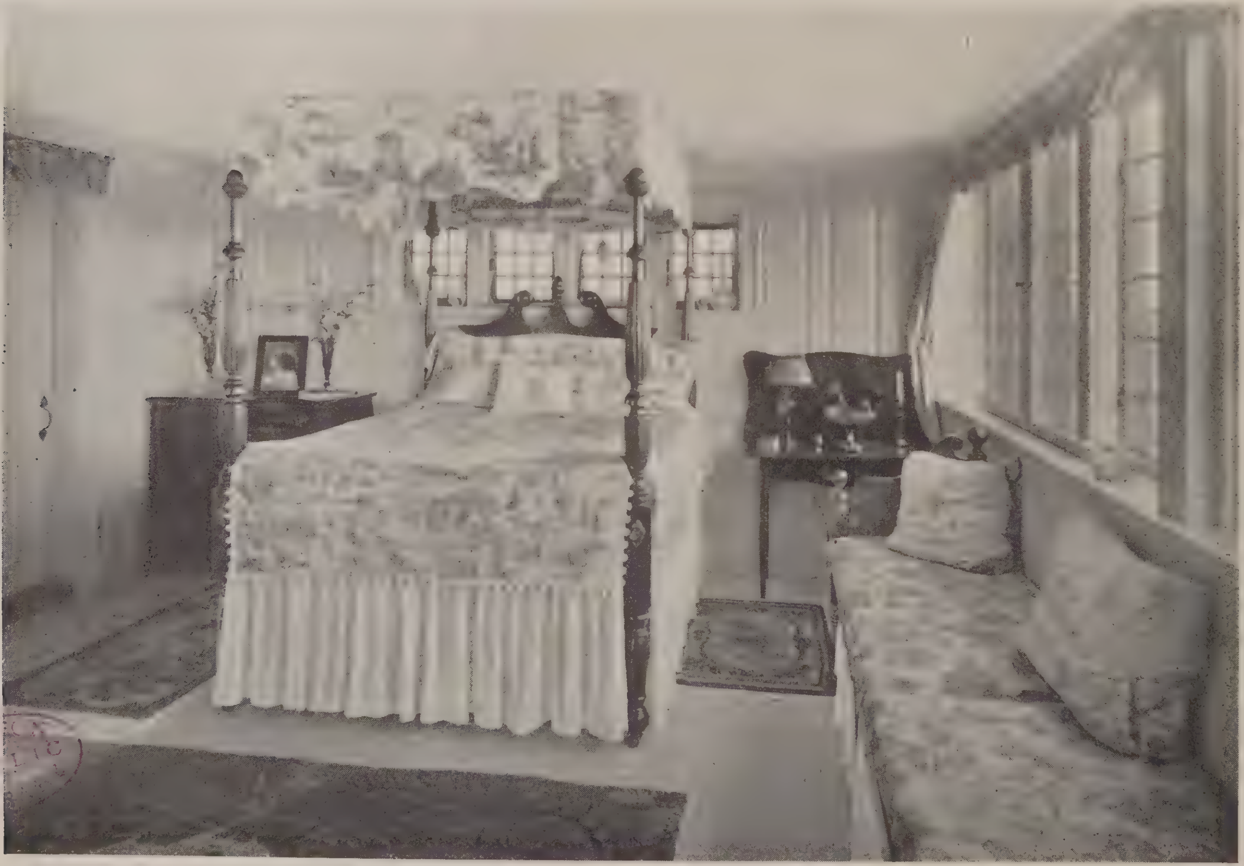


Dining Room

The apex of a gable is brick in herringbone; on the entrance facade that pattern has been used in the brickwork surrounding a half-timbered oriel window resting on a timbered fan. In this window, as well as in others of the same wall, iridescent fifteenth century glass in octagonal panes has been used to insure privacy from the roadway. Adjoining the oriel window is the timbered entrance porch, partly screened by a panel of brickwork in the timbering, surmounted by ancient balusters. The door, composed of four oak planks, with its glazed "gichet" through which some long dead housekeeper peeped stealthily at the caller, and solid iron hinges, leads by a narrow passage and steps to the long living room. The telephone booth and coat closet are concealed under the stairs at the left of the passage, convenient yet unseen.

The living room, resembling the principal room of an early American tavern or perhaps a kitchen of the period, is 40 feet long and 20 feet wide. The broad chimney opening, surmounted by a hewn beam, the fire banked high against an iron fireback from the first American iron foundry at Saugus, greets one upon entering. The chimney has been constructed of mellowed brick. Their soft texture and somber color have been maintained in the floor, which is of the same old brick, laid end to end, with circular inserts to give variety to the pattern formed in brick.

The broad vertical wainscot boards which line the

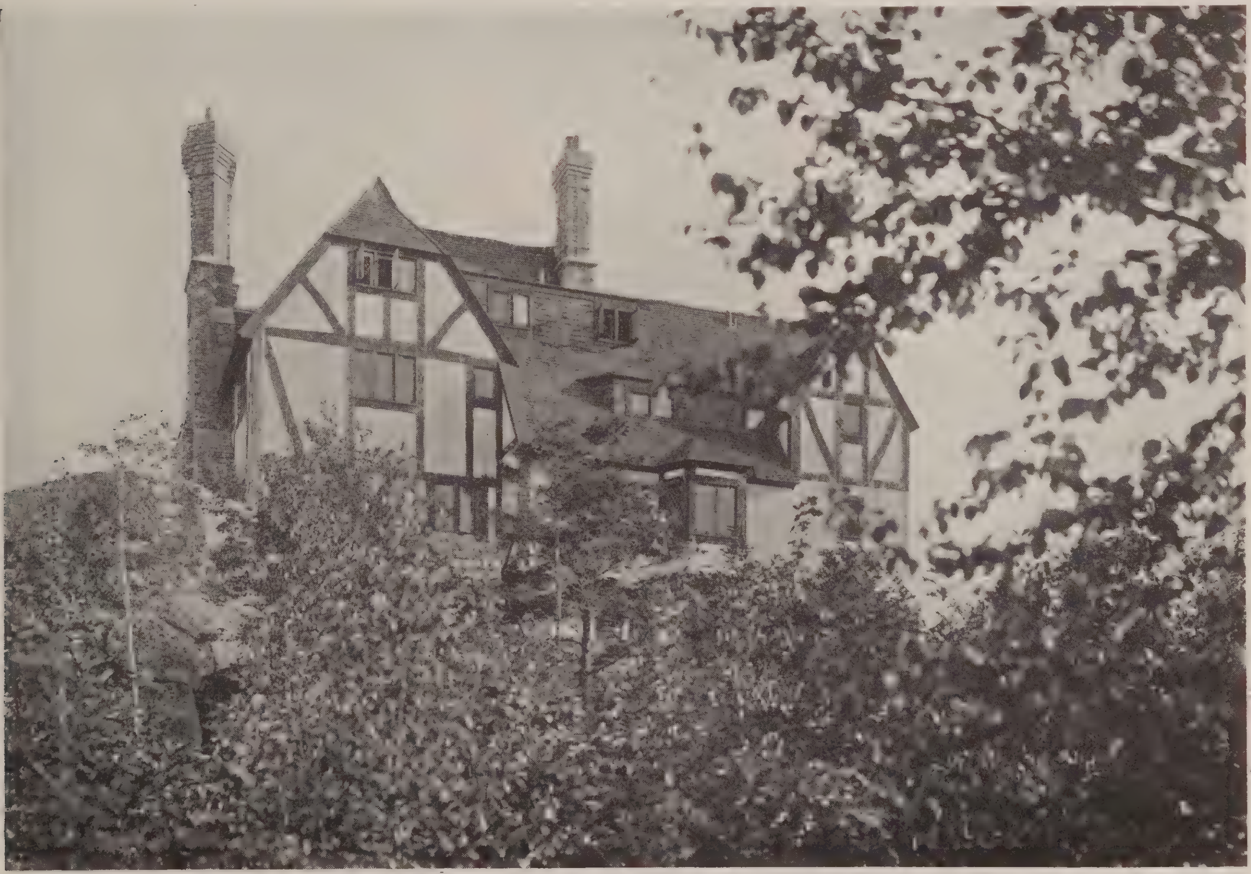


The Owner's Chamber

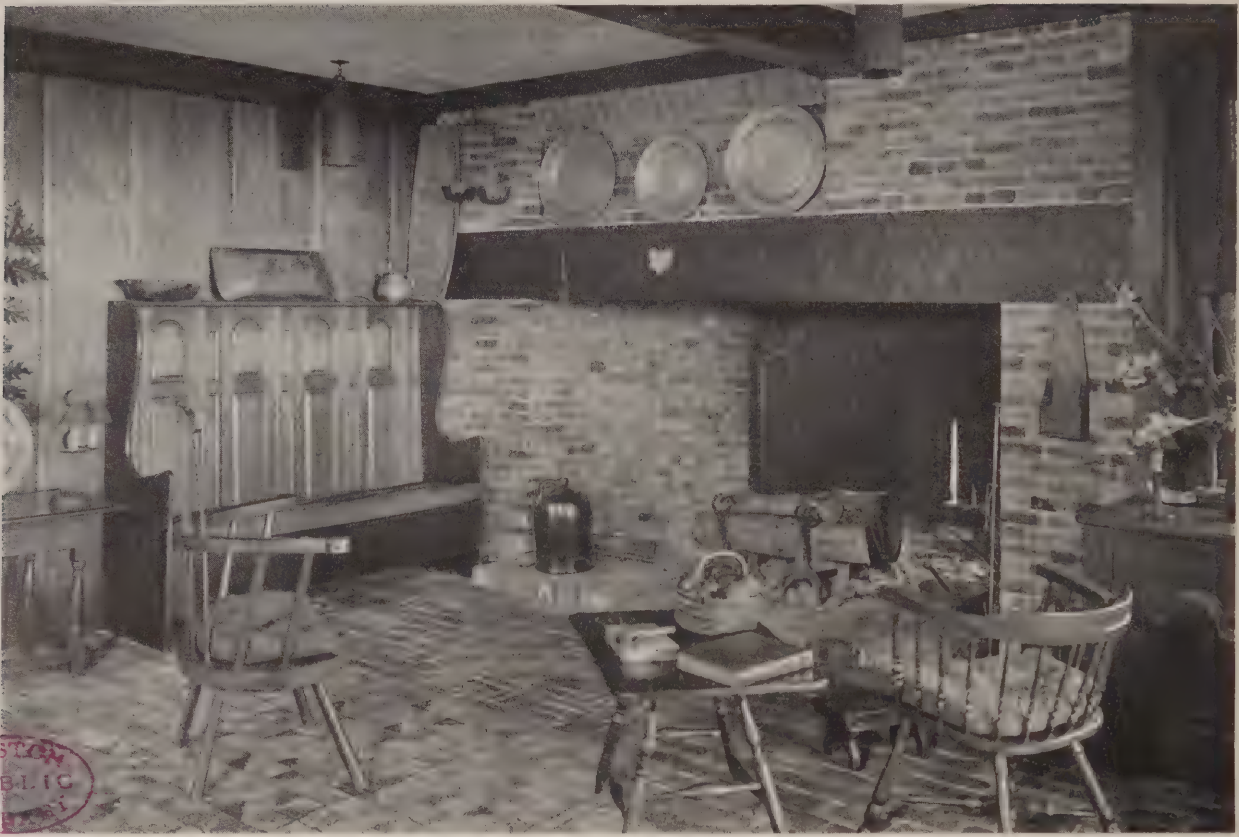
View of Lake and Bay from House

walls, the huge beams supporting the ceiling, the capacious cupboards, incorporated into the walls, the simple and direct stairway, turning once on a landing lighted by a mullioned window, the primitive chairs, — Carvers, spindlebacks, low Windsors, high Windsors, and the pine fireside chair with its protective wings, — the unadorned tables ranged about the walls and down the central axis of the room, express the frugality and simplicity of an early American kitchen, where the settler cooked, ate, received his occasional visitors, and read from the Bible to his host of children. To relieve this appearance of frugality and austerity, a warm orange material has been used for the hangings and the upholstery of the long settle placed under the windows at the far end of the room. Old quilted stuff of a deep blue was used for the chair cushions. The intimate grouping of the chimney seat, a rare Connecticut paneled settle of pine, and the chairs and stools about the fire, the dull brilliance of historic American pewter on the scalloped-edged dresser, the gay designs of the hooked rugs, the warm tones of the glass bottles on the window ledges and of the Pennsylvania pottery stored in the wall cupboards, make the room welcoming, livable, and interesting, with indefinable Old World charm.

The necessities of electric lighting and steam heating have been skillfully adapted to the design of the period. Lanterns of the Paul Revere type



The North Side of the House Rises Above the Tree Tops



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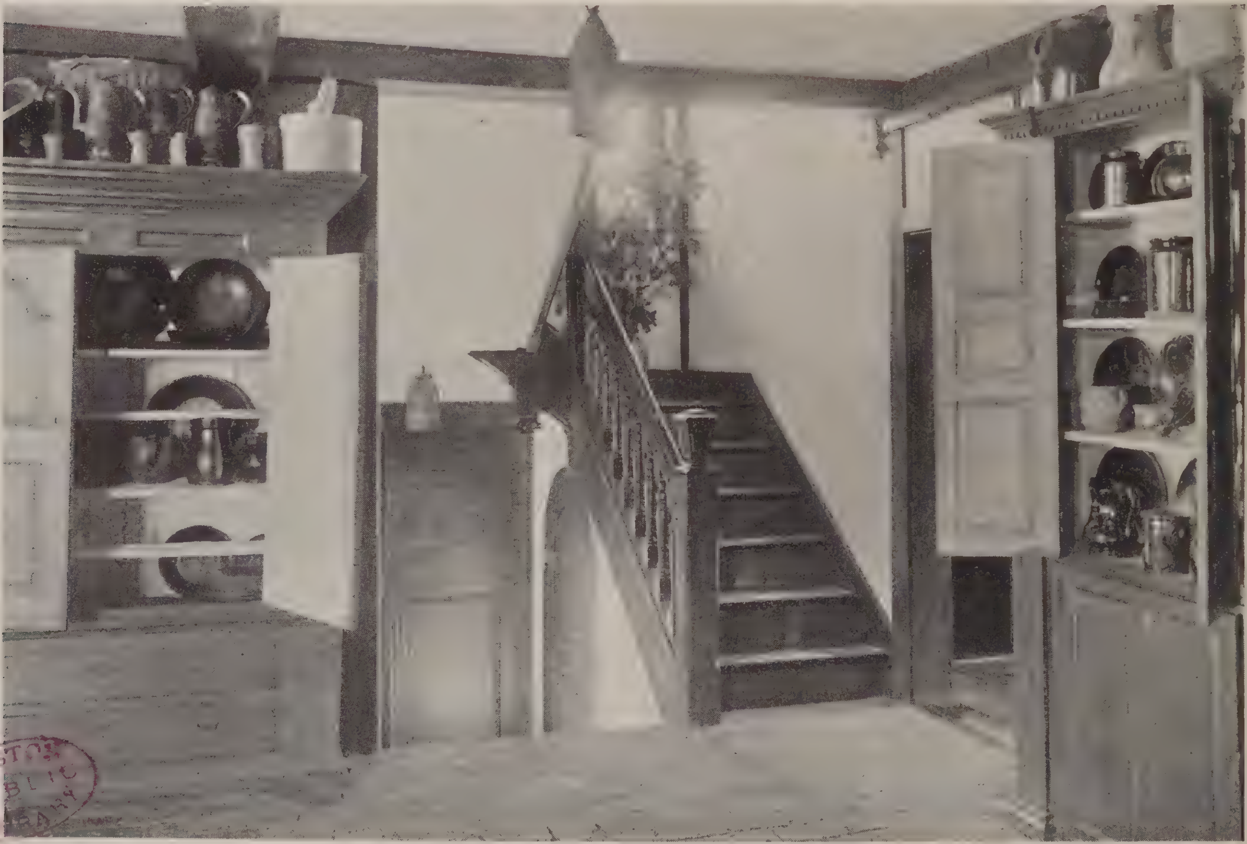
CHIMNEY CORNER IN THE LIVING ROOM



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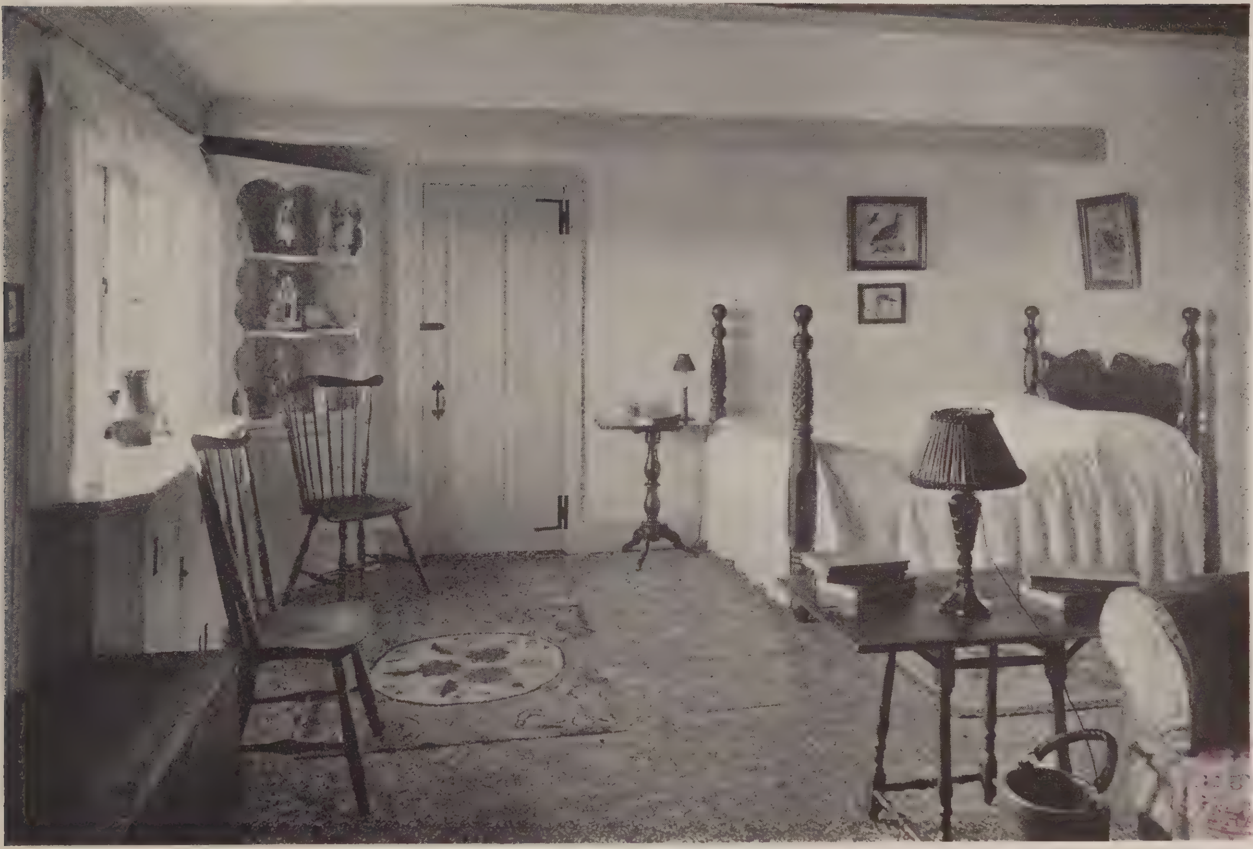
Plans on Back of Plate 53

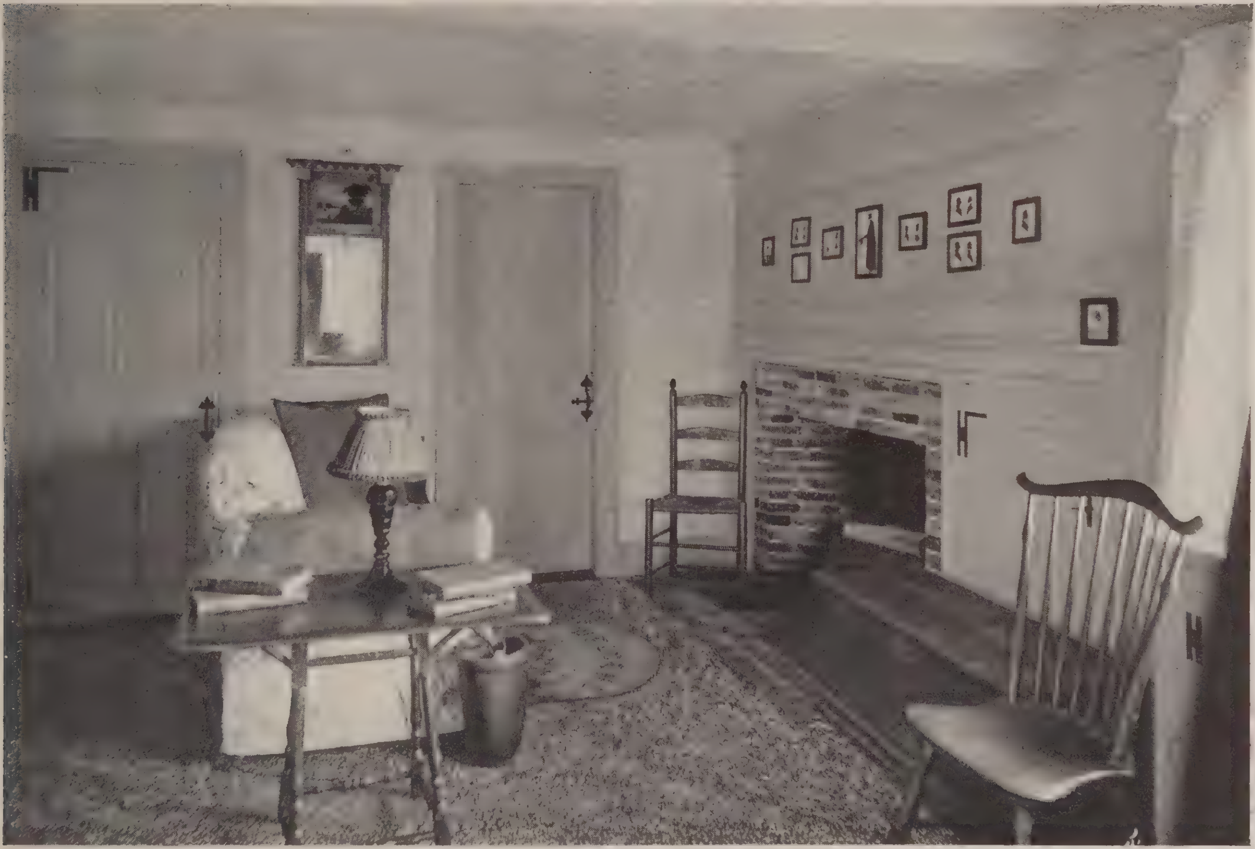
THE STAIRWAY FROM THE LIVING ROOM

"STILLINGTON," HOUSE OF LESLIE BUSWELL, ESQ., GLOUCESTER, MASS.

ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS



THE EAST CHAMBER



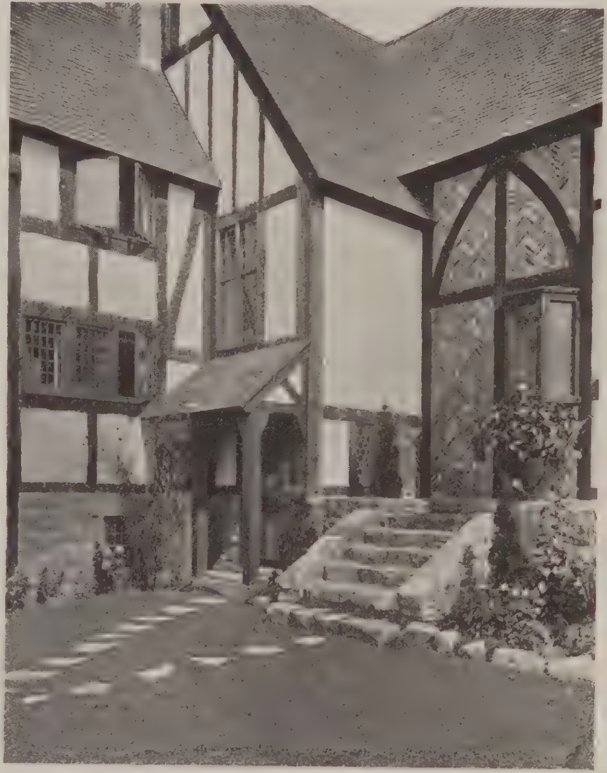
FIREPLACE CORNER IN THE EAST CHAMBER

"STILLINGTON," HOUSE OF LESLIE BUSWELL, ESQ., GLOUCESTER, MASS.

ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS

hang at intervals from the ceiling, radiating light below and casting reflections of their pierced designs on the ceiling. Old iron candle lamps, in which the candles have been simulated, light the tables. Under what appears to be an old chest or a wide window ledge with paneled cupboards below, the radiators are concealed, space also being provided for the storage of logs for the capacious fireplace.

The dining room represents a later and more sophisticated period of American building. The eighteenth century blocking paneling is of pine, the floor is of broad boards, and the furniture,—a maple sideboard, an inlaid applewood table, with Spanish feet, and rush seats,—is evidence that all early American cabinet work was not of the rough hewn type. Here one finds delicacy of design and finished craftsmanship. Over the sideboard is a delightful signboard, an early painting in direct elevation of Turner Center, Maine, where it was hung outside the local tavern. It now serves as an interesting mural, an undoubted American "primitive." In the corner cupboard is a rare collection of spatter ware, and against the wall a seventeenth century bridal chest from the shop of a Connecticut woodworker. The adjoining pantry and the kitchen below stairs are modern in equipment, with no attempt at period.


Entrance Porch and West Terrace

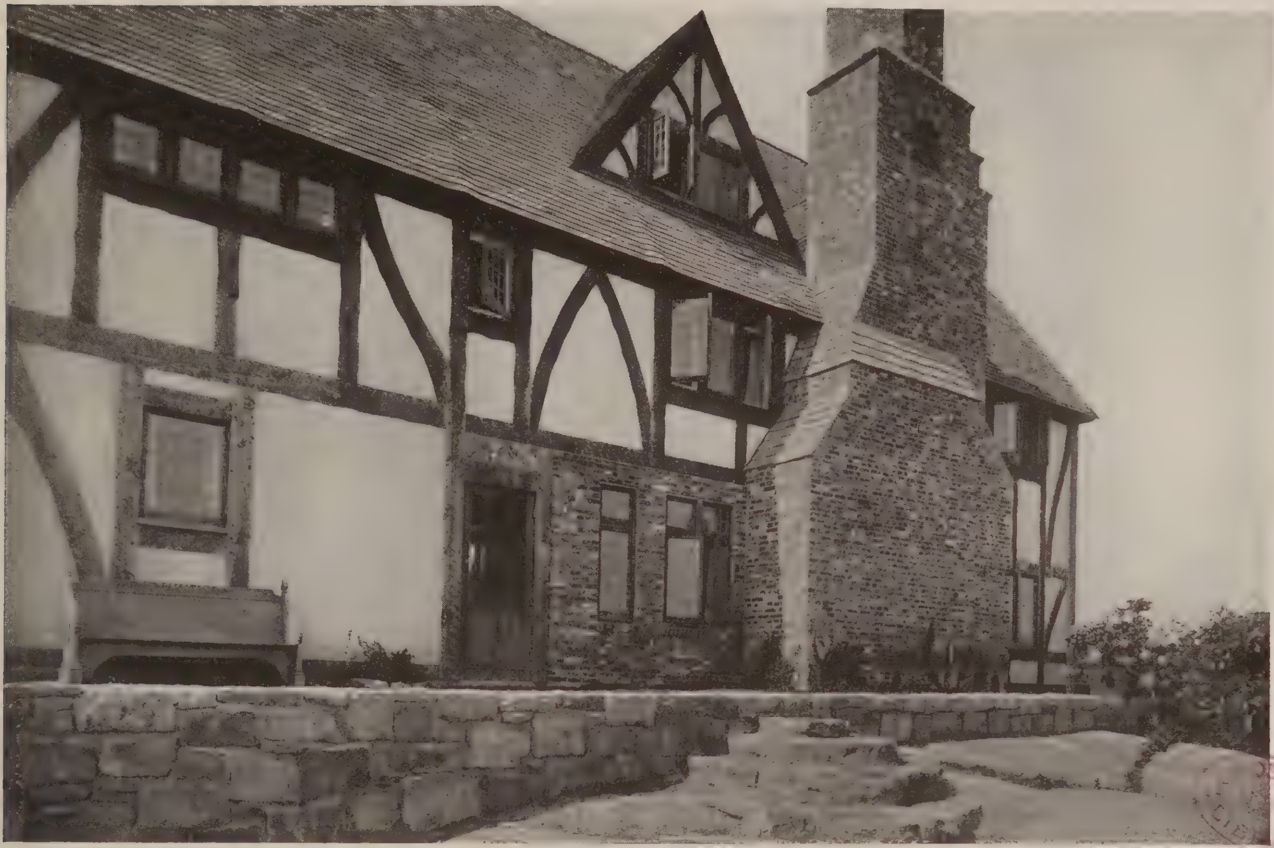
Through a passage, the library joins the dining room. It is a bright, book-lined room, with windows on three sides, orange linen hangings and window seats, tan painted woodwork and a classical printed paper. This room was built around some pieces of English and Dutch marquetry inherited by the owner, the kind which were popular during the late seventeenth and early eighteenth centuries. In this room hang on either side of the fireplace two interesting "courting mirrors." These mirrors, now seldom to be found by the collector, were carried by the hopeful suitor to the young woman upon the occasion of his proposal of marriage. If she accepted him, she hung the mirror in her boudoir. Their rarity is probably due to the large percentage of rejections! The library is likewise lighted by hanging lanterns of the square type long carried through the Boston streets before the advent of street lamps.

The stairway leads from the living room to characteristic corridors winding down the wings of the house. Over the living room, with a like expanse of windows giving upon the sea vista, is the master's bedroom with its white paneled walls, white board floor, maple furniture and hangings of red *toile de Jouy*. The bed cover and valance of pictured *toile* give an air of gaiety to the otherwise dignified poster bed. In all of the bedrooms glass lamps with colored silk shades give a practical and well diffused light.

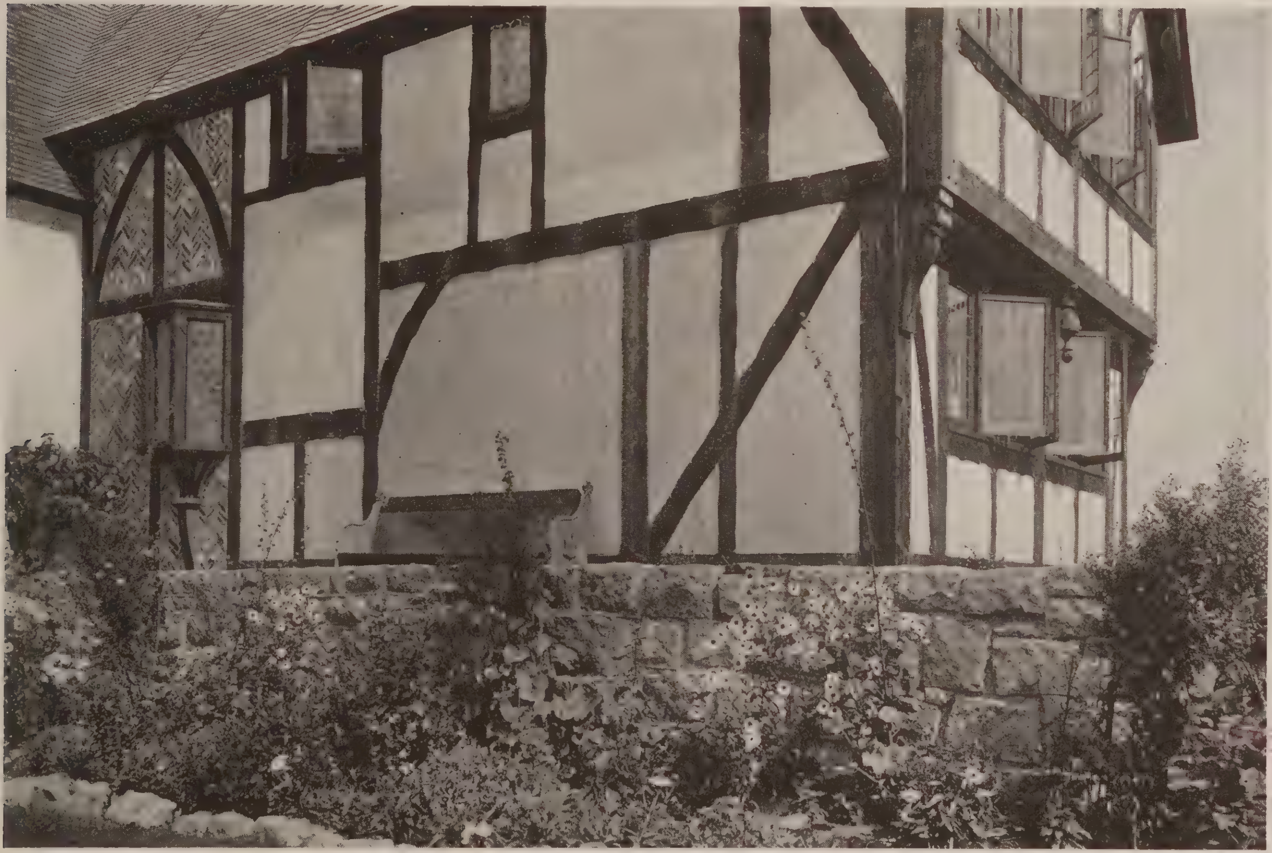
Joined by well appointed bathrooms are other bedrooms. One is in apple green, with a fireplace and corner cupboard containing Staffordshire ware, and with a sailor's chest with his ship painted on the lid, and dainty silhouettes in maple frames grouped in the chimney corner. A second bedroom is painted in *cafe au lait*, with flowered chintz for curtains and canopy, and a cabinet of American glass. Farther down the hall are two diminutive guest rooms and a bath. One has chocolate walls, with red as the motif of the chintz and rugs, a Franklin stove, and an early map of the western hemisphere, interesting for what was unknown at the time. In the corner of this wing of the house is a blue and white room lighted by a French window which opens onto a semicircular balcony of wrought iron. At the end of the hallway is a service stairway, leading up from the kitchen entrance to the servants' rooms, the study and the cedar closets on the upper floor.

An appearance of newness has been avoided in the house, yet there is no strained effect of antiquity. The unobtrusive age of the materials and the natural arrangement of the furnishings give one the feeling that the place has been there for decades. It is a truly "old-new" house, the ambition of the collector of antiques, but unfortunately not often realized.

"Stillington" affords all of the indoor comforts, and outdoor pleasures as well. The lake provides boating and swimming in summer. Ducks, muscovies and mallards, swim about its shore. There is the sea hard by for sailing and fishing. In winter, there is skating, and skiing and tobogganing down the road. A few yards above the lake, built on the banks of the brook, sheltered from the winds by evergreens, is an outdoor chimney of fieldstone, with a circle of seats hollowed out of the rocky hillside.



EAST TERRACE

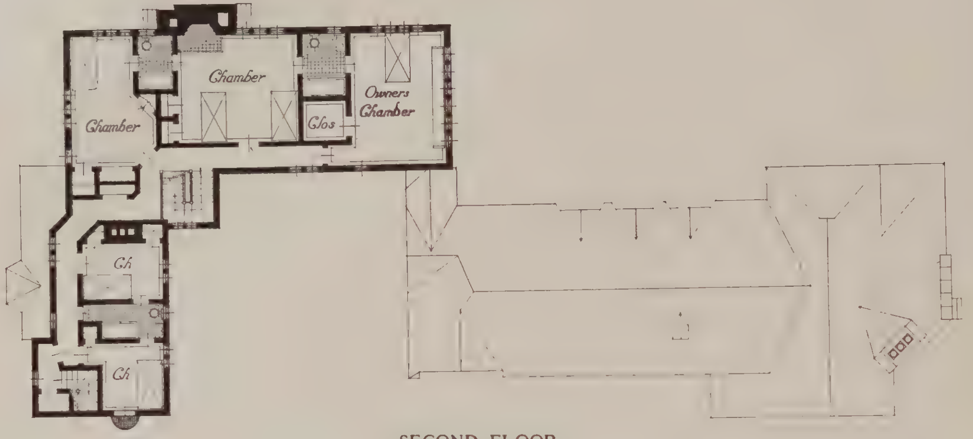


WEST TERRACE

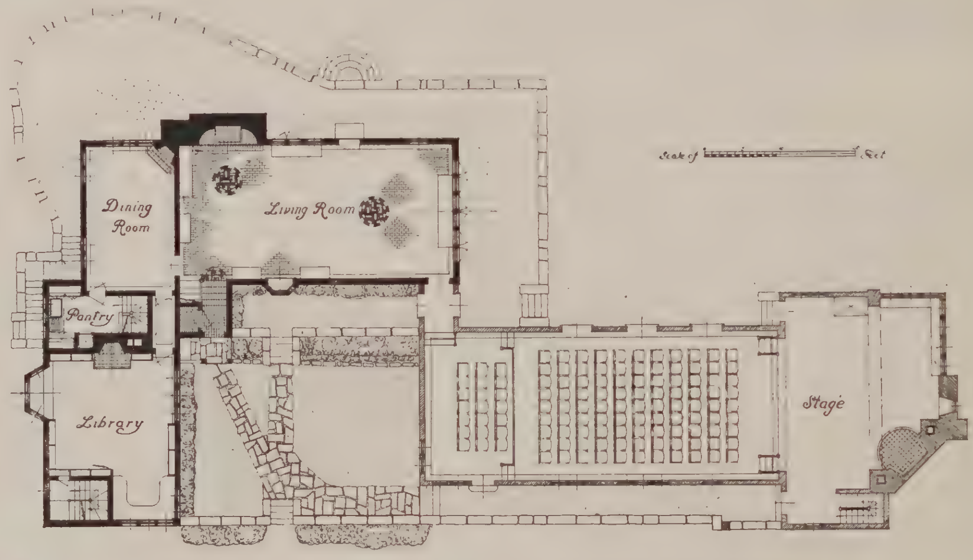
Plans on Back

"STILLINGTON," HOUSE OF LESLIE BUSWELL, ESQ., GLOUCESTER, MASS.

ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS



SECOND FLOOR

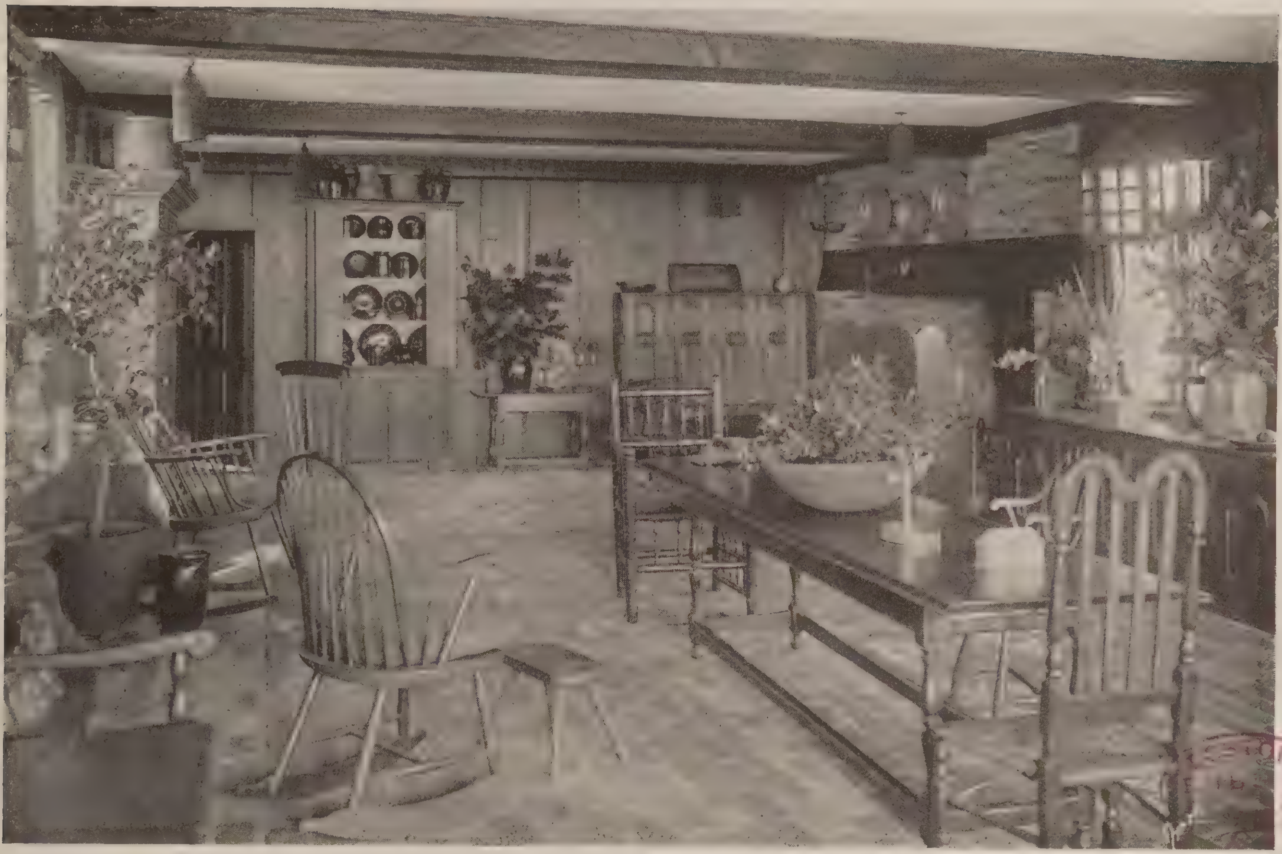


FIRST FLOOR, SHOWING SMALL THEATER NOW BEING BUILT

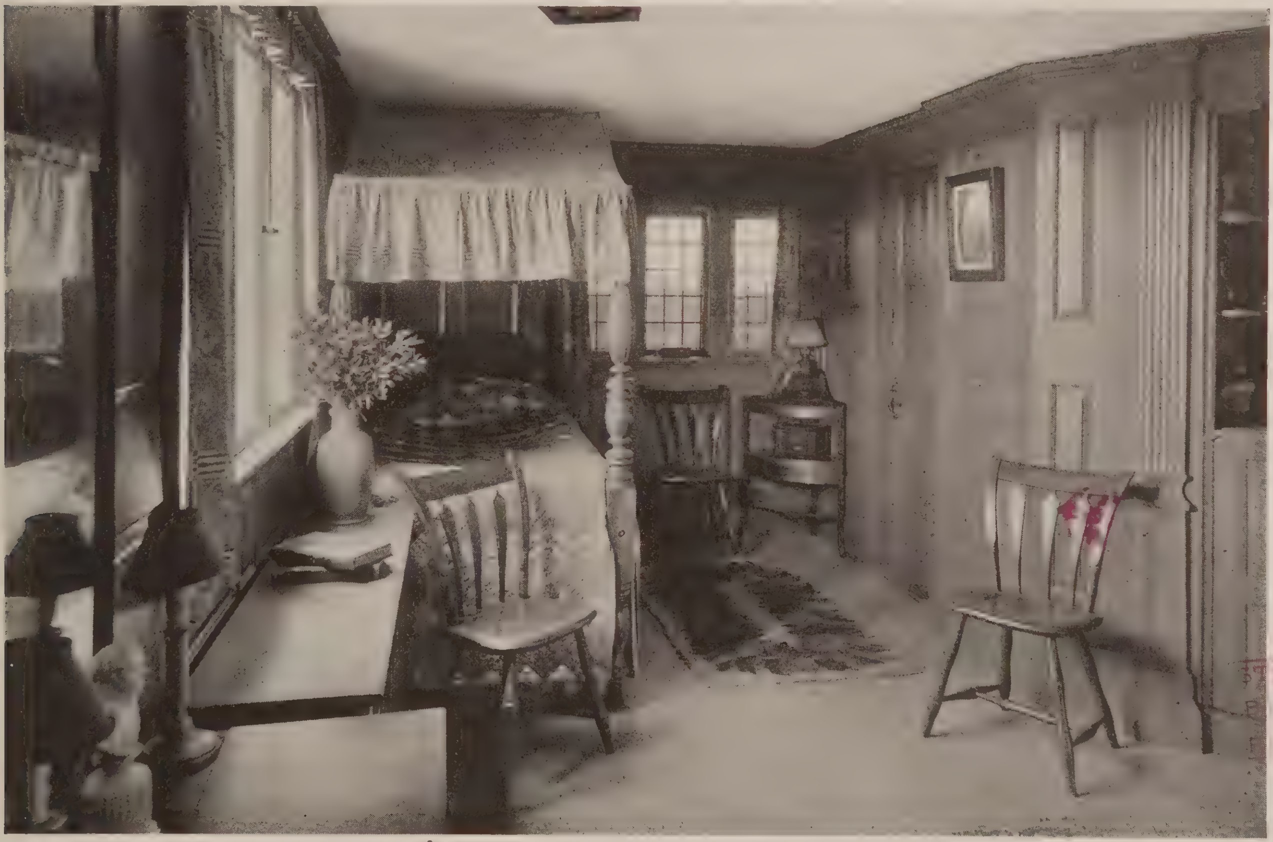
BOSTON PUBLIC LIBRARY

"STILLINGTON," HOUSE OF LESLIE BUSWELL, ESQ., GLOUCESTER, MASS.

ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS

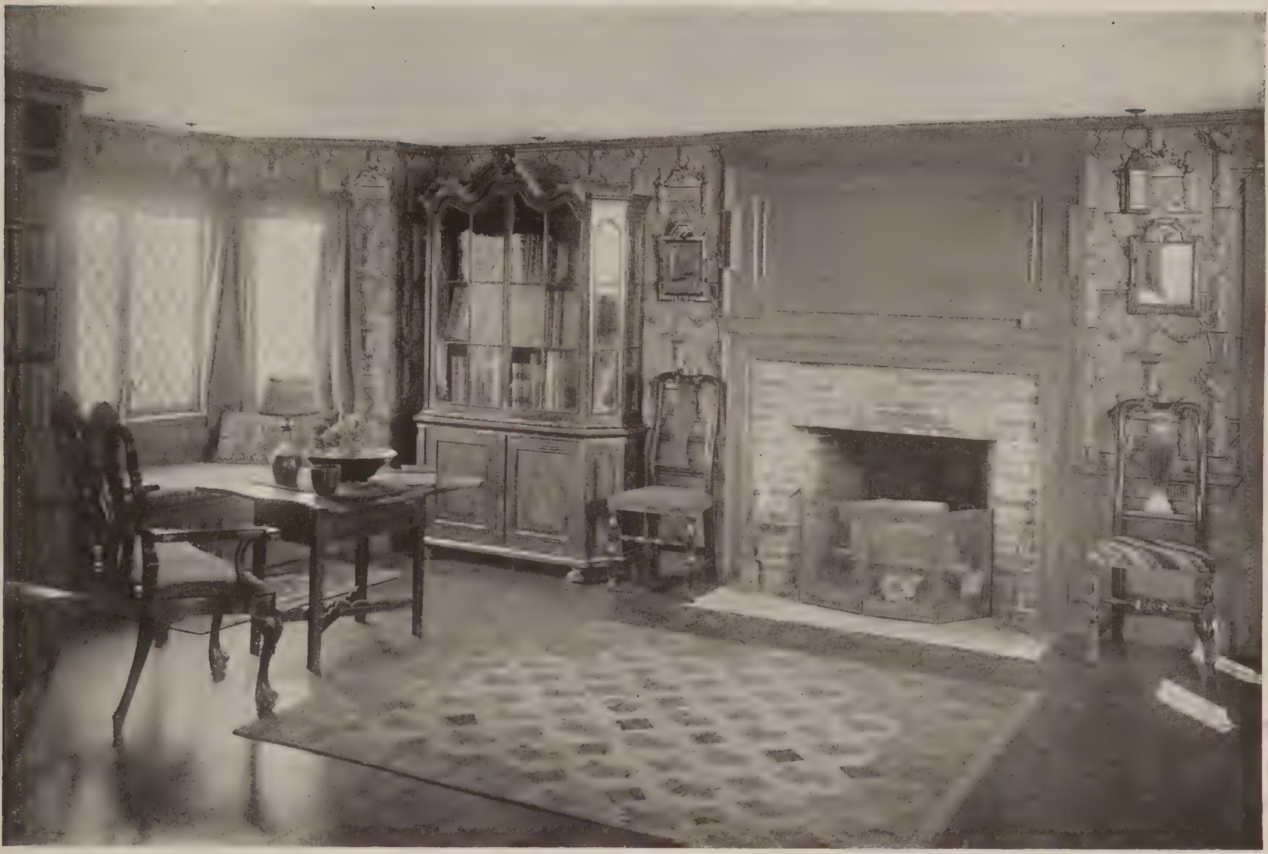


LIVING ROOM

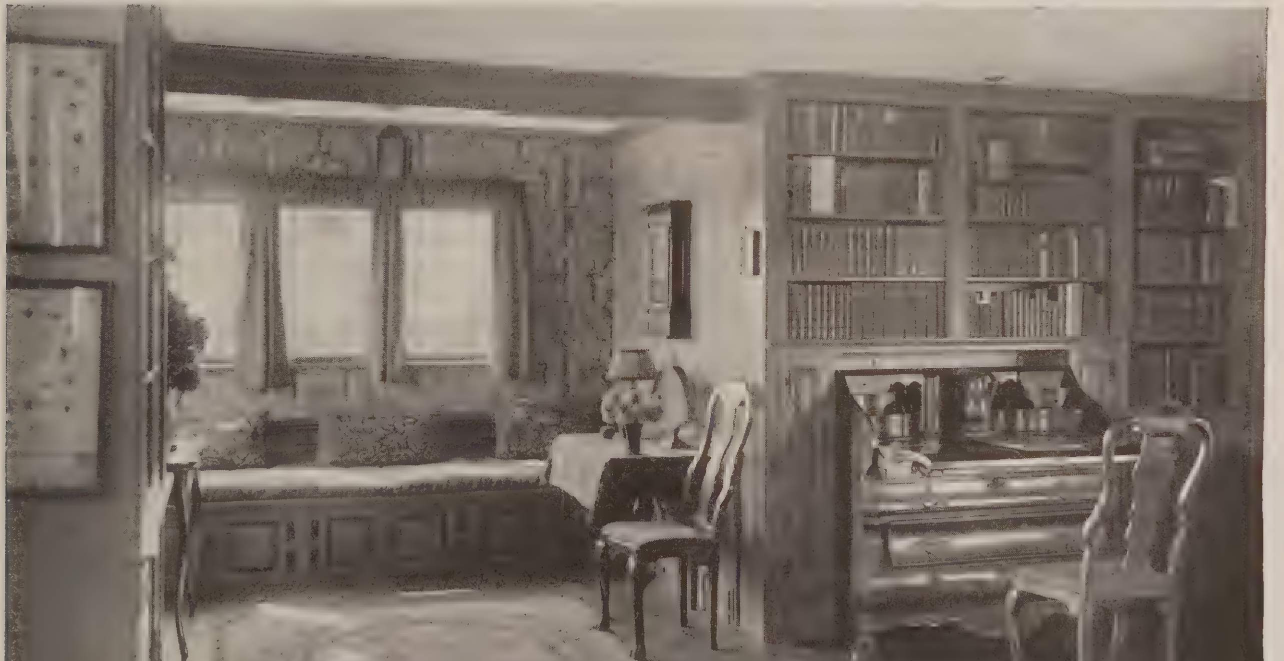


SOUTHWEST CHAMBER

"STILLINGTON," HOUSE OF LESLIE BUSWELL, ESQ., GLOUCESTER, MASS.
ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS

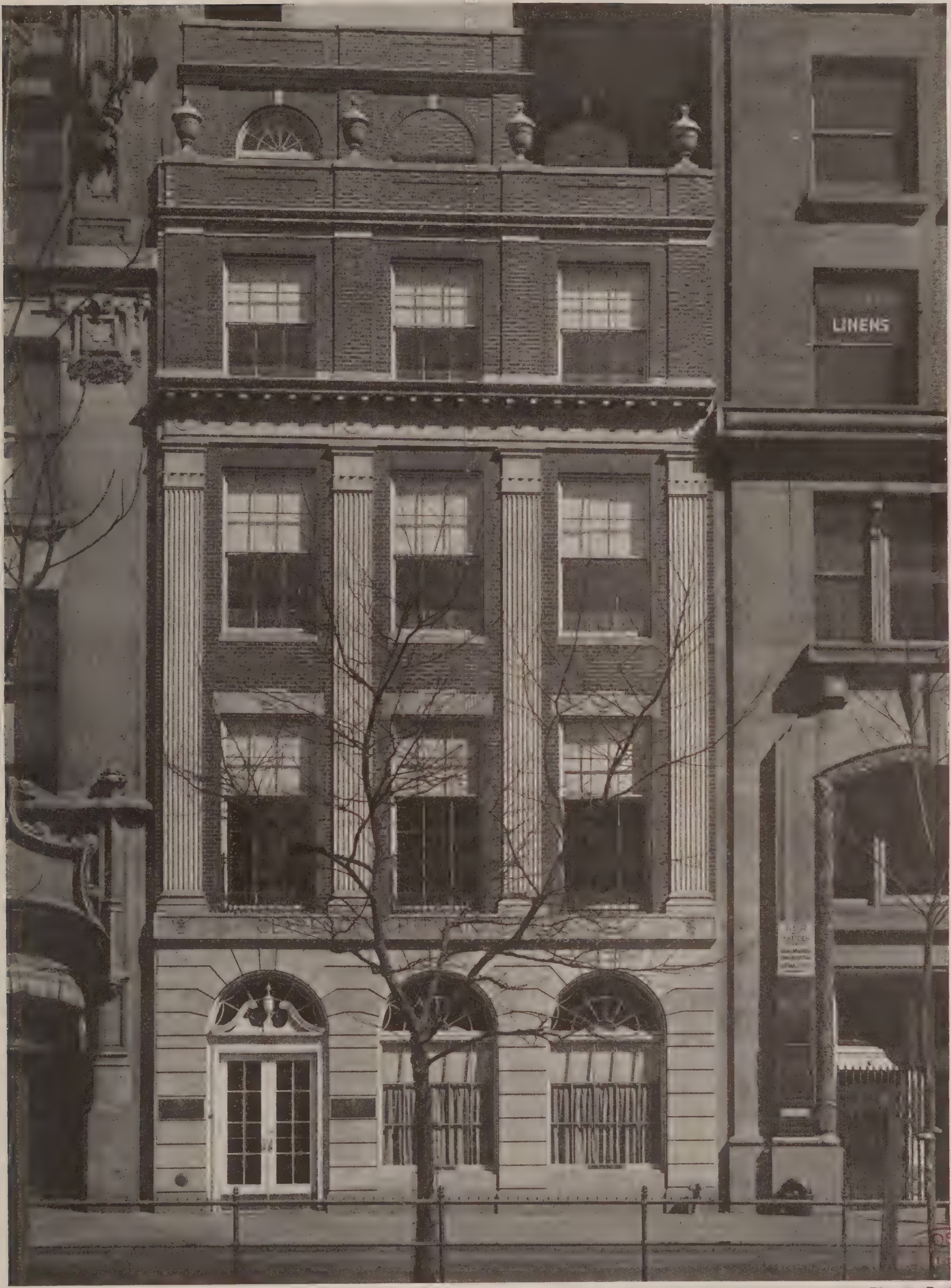


NORTHEAST CORNER OF THE LIBRARY



WEST SIDE OF THE LIBRARY

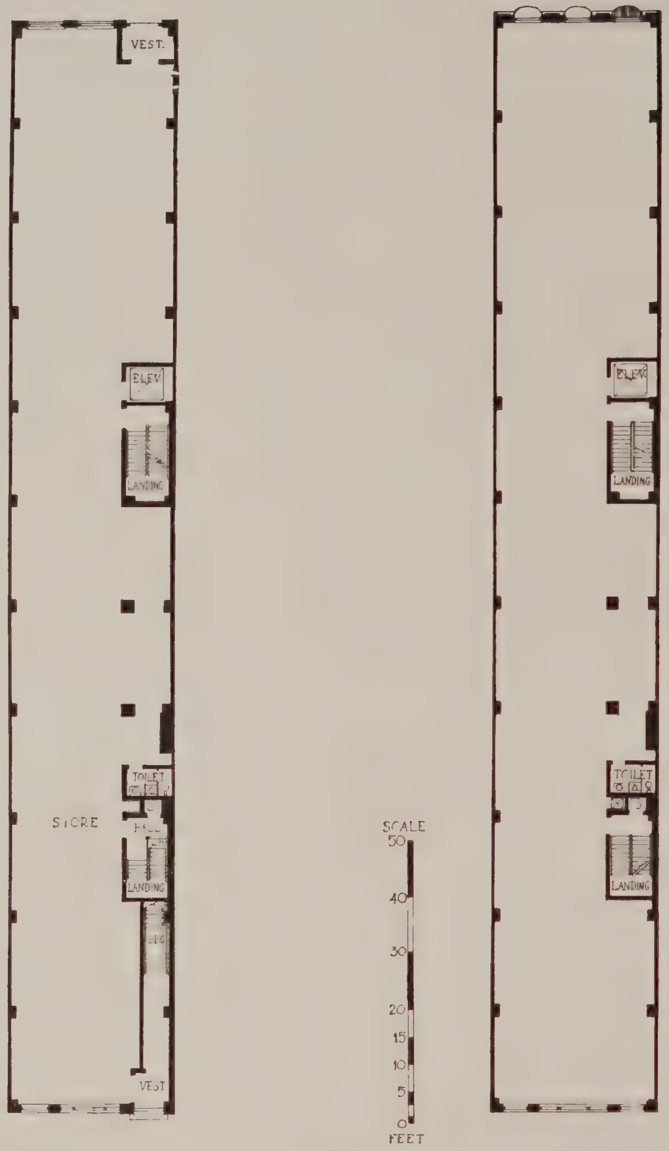
"STILLINGTON," HOUSE OF LESLIE BUSWELL, ESQ., GLOUCESTER, MASS.
ALLEN & COLLENS AND HAROLD B. WILLIS, ARCHITECTS



Photos. Y. Amemiya

Plans on Back

OFFICE BUILDING FOR CLARENCE WHITMAN & SONS, INC., NEW YORK
TREANOR & FATIO, ARCHITECTS

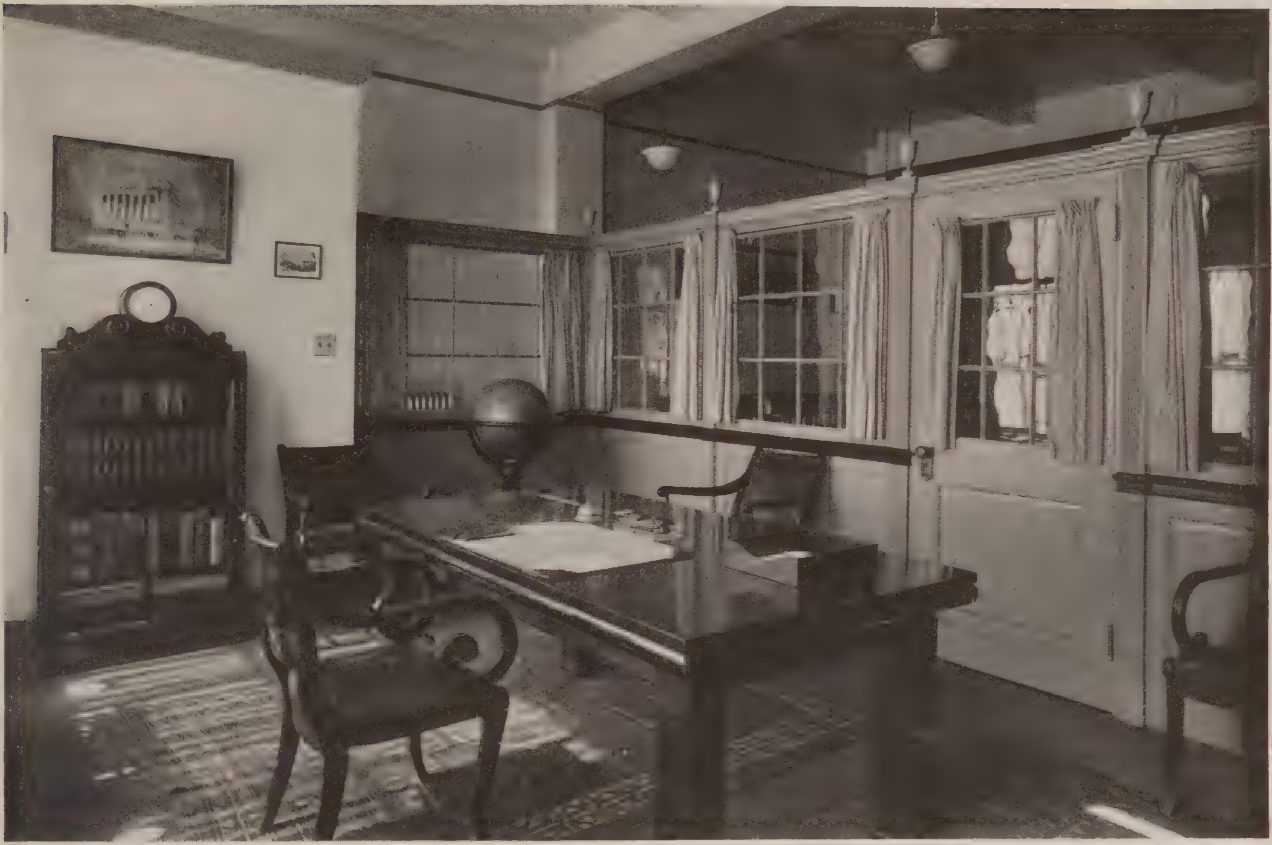


ENTRANCE FLOOR

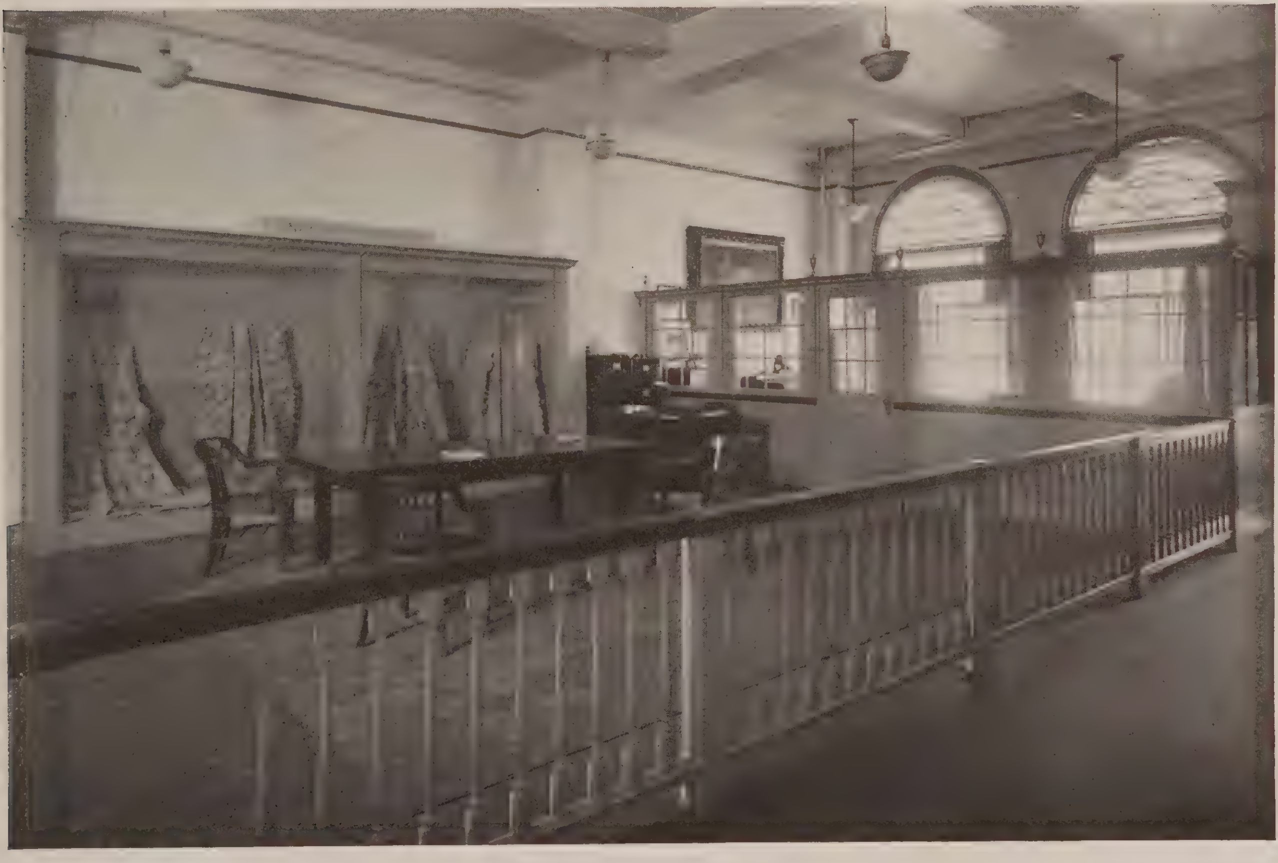
TYPICAL FLOOR

PLANS, OFFICE BUILDING FOR CLARENCE WHITMAN & SONS, INC., NEW YORK

TREANOR & FATIO, ARCHITECTS



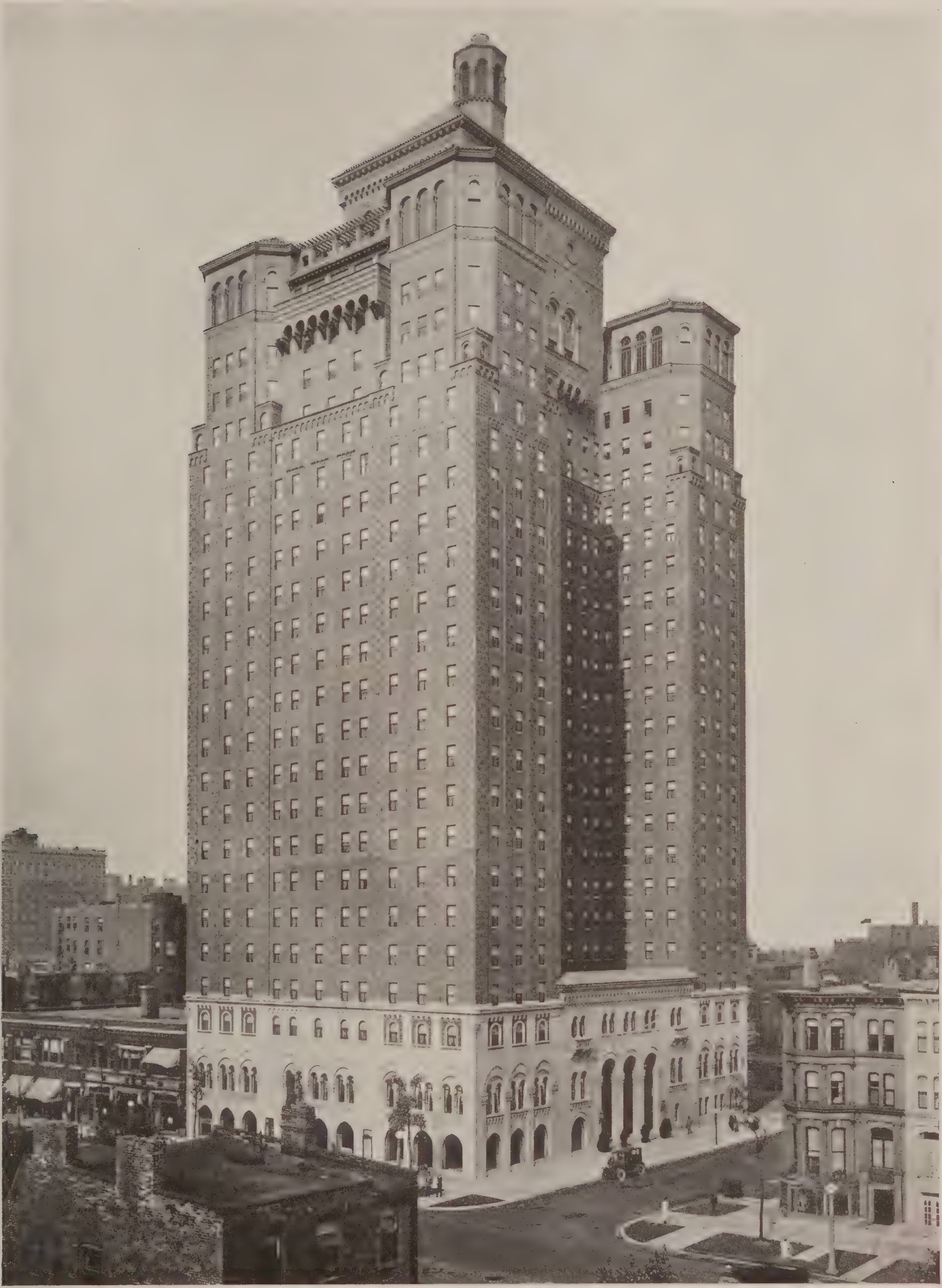
PRIVATE OFFICE, ENTRANCE FLOOR



DETAIL, ENTRANCE FLOOR

OFFICE BUILDING FOR CLARENCE WHITMAN & SONS, INC., NEW YORK

TREANOR & FATIO, ARCHITECTS

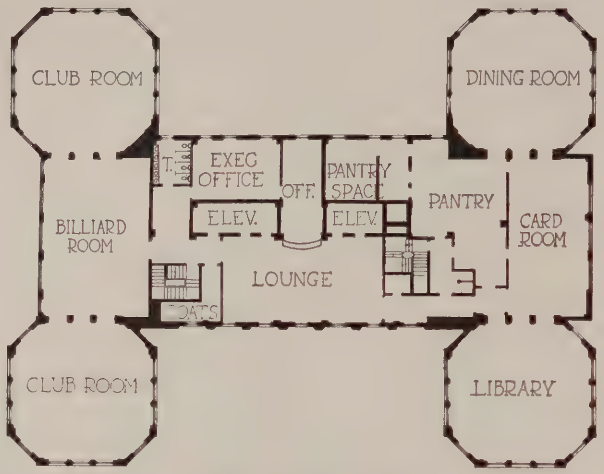


Photos. R. W. Trowbridge

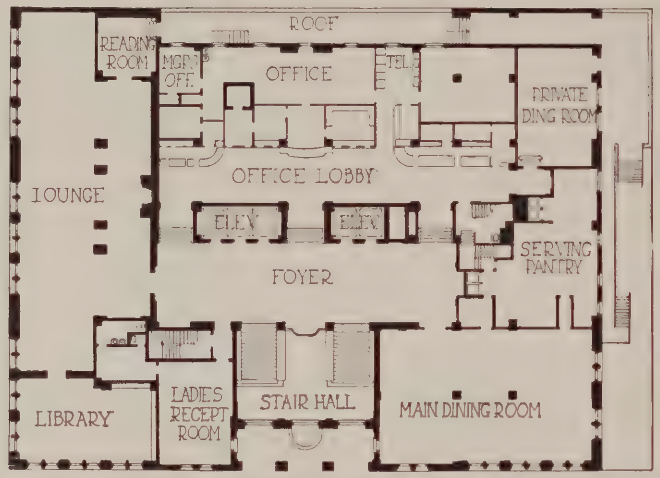
Plans on Back

CHICAGO ALLERTON HOUSE

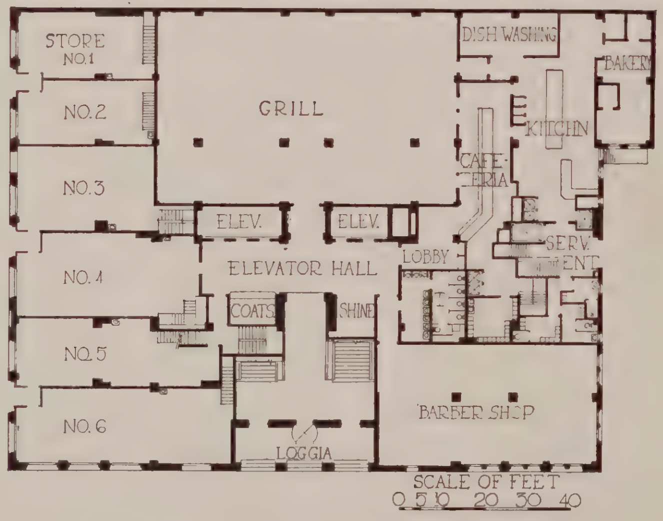
MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATE ARCHITECTS



TWENTY-THIRD FLOOR



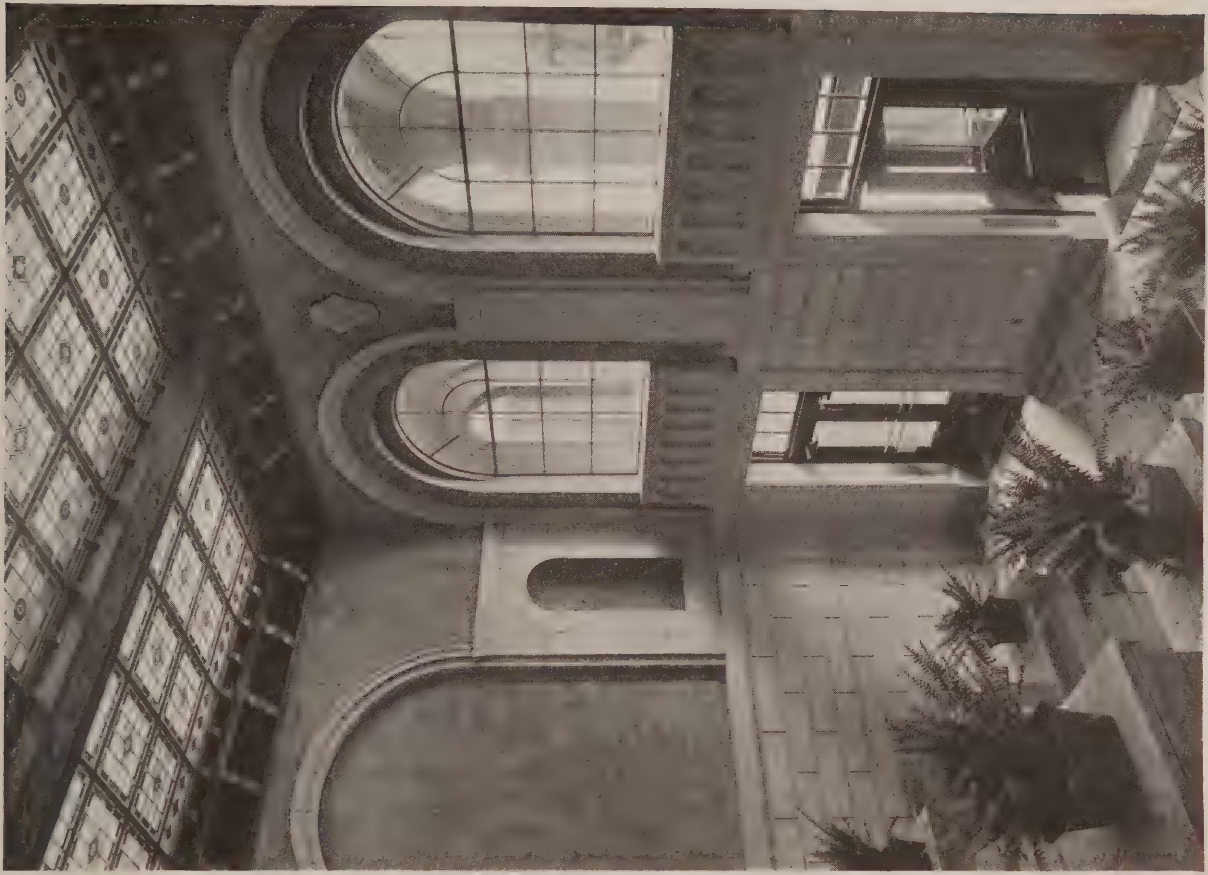
SECOND FLOOR



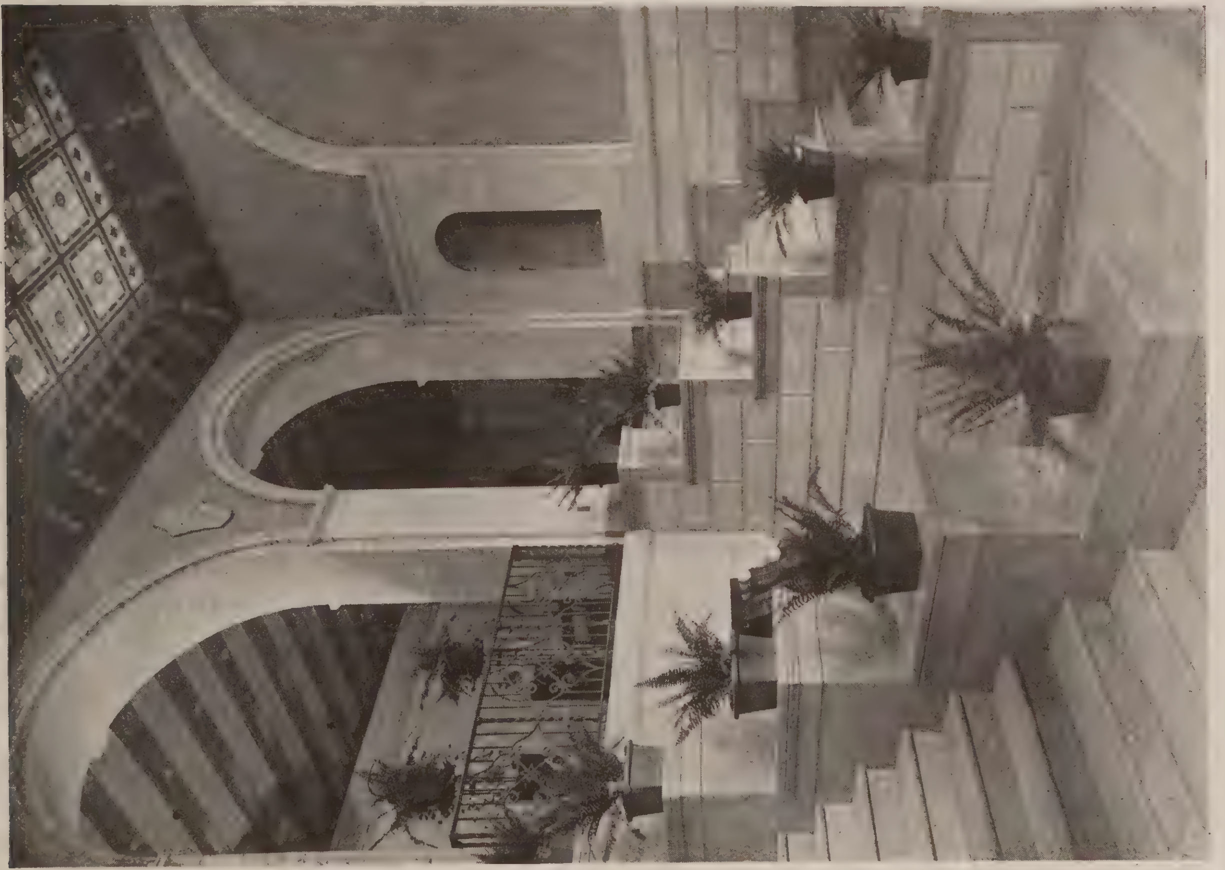
ENTRANCE FLOOR

PLANS, CHICAGO ALLERTON HOUSE

MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATED ARCHITECTS



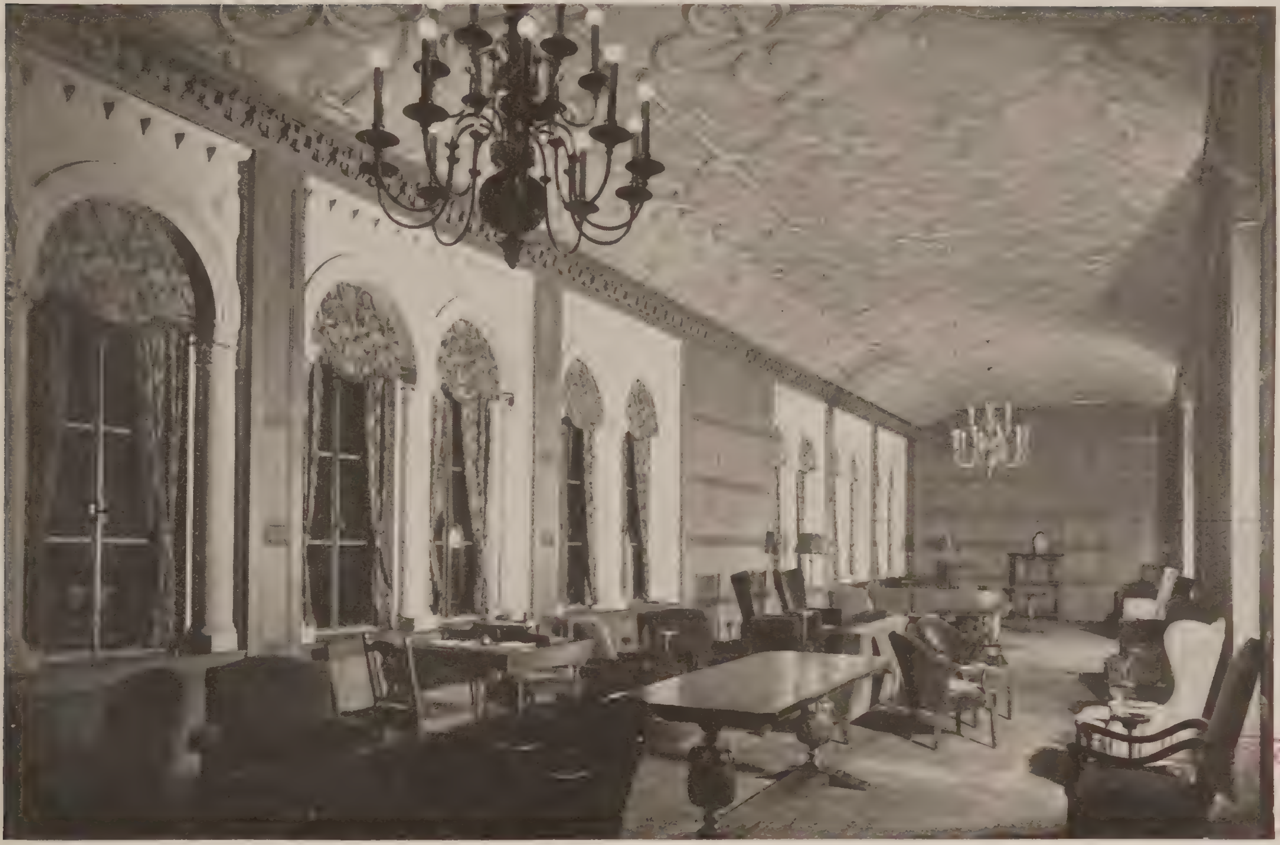
ENTRANCE LOBBY



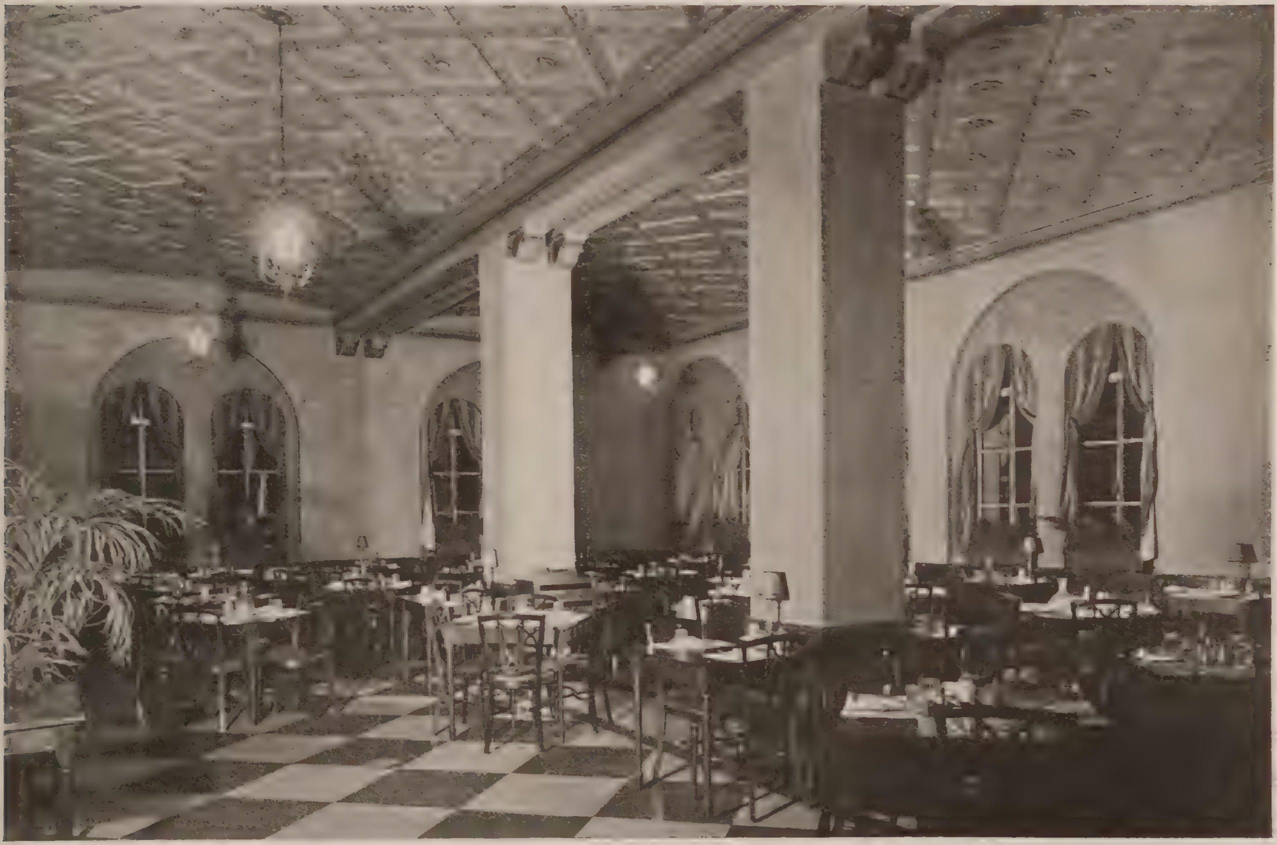
MAIN STAIRWAY

CHICAGO ALLERTON HOUSE

MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATE ARCHITECTS



LOUNGE



MAIN DINING ROOM

CHICAGO ALLERTON HOUSE

MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATE ARCHITECTS

The Chicago Allerton House

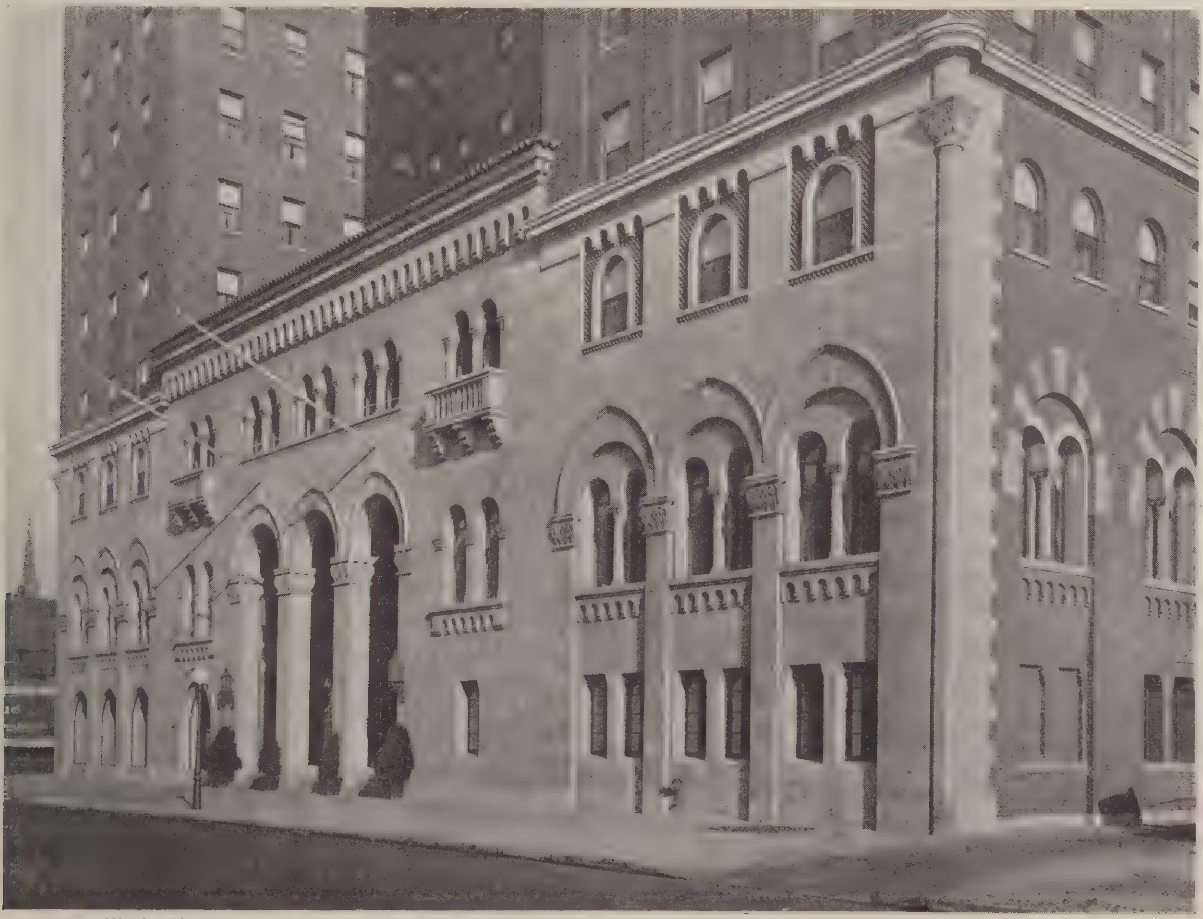
MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATE ARCHITECTS

By PALMER H. OGDEN

THE shortage of housing and the high cost of building today have made any new project an economic problem; therefore in crowded areas or where land values are high, we find commercial buildings, apartment houses and hotels designed as skyscrapers, rising from 20 to 30 stories in height, on the average. We also have coöperative ownership to further reduce the ever-increasing costs. Then we have still another problem,—the housing of bachelors, both male and female. The antiquated boarding house with its limited accommodations becomes costly if one desires the comforts of home. The club is costly too, if it has living accommodations with few to carry the burden. Therefore in housing a large number under one roof, with all the home and club life comforts, the operating cost is naturally distributed among more units and is reduced per capita, making comfortable living possible.

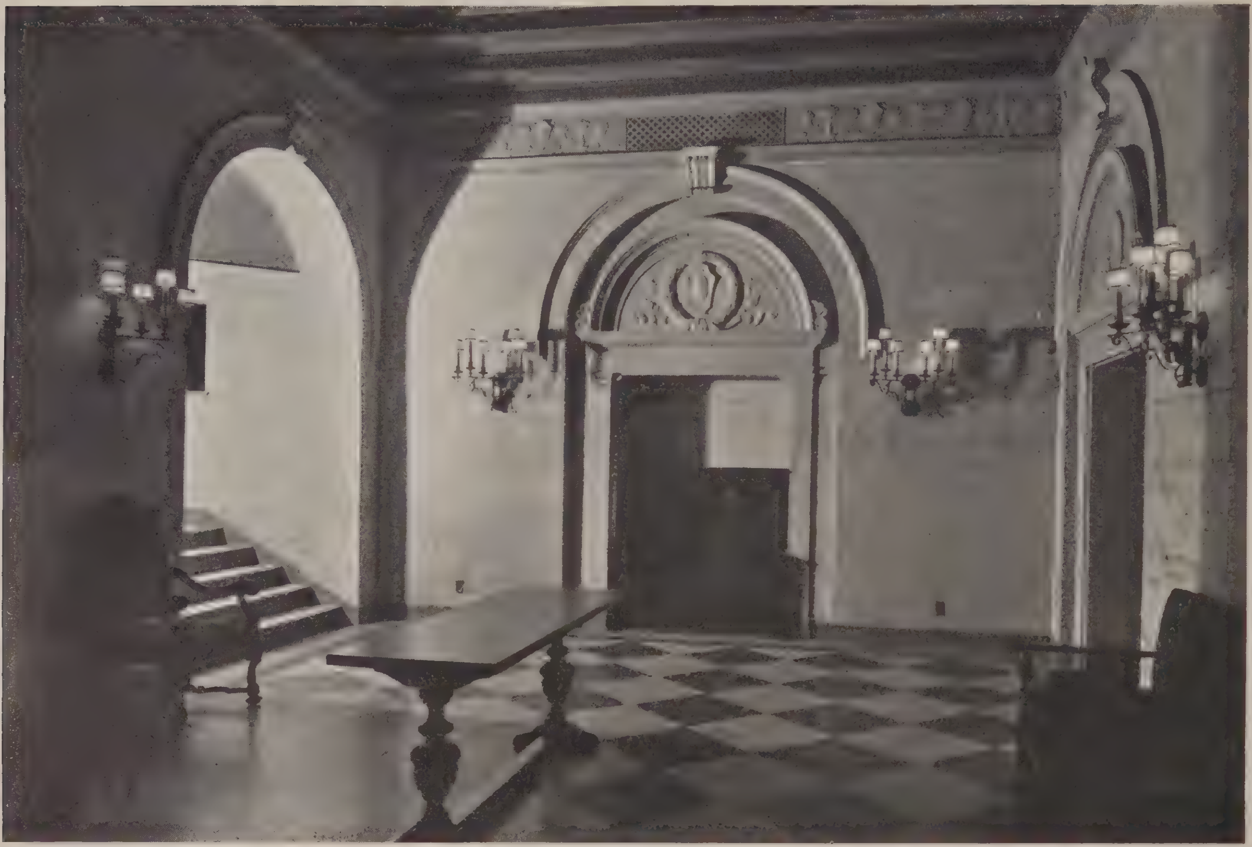
The first examples of the type of building to benefit this class are found in the numerous club residences erected in New York by the Allerton House Companies, and recently in the completion of such a structure in Chicago, which this article will attempt to describe briefly. In every large or small city there are many single men and women who desire club life. This is why the Allerton Houses in New York are so popular, and Chicago is now the first city outside of New York to have such an institution. These club hotels have solved an economic problem for the class of people for whom they are intended. The keynote of this type of building is economy, not only in space, but in so planning it that it is economical in operation,—thereby benefiting the guests because they are able to obtain all the privileges of a residence club at moderate rentals. The new Chicago Allerton House, recently completed, is located on one of the finest thoroughfares in the city, at the corner of North Michigan Avenue and East Huron Street. Its tall shaft, 26 stories in height, towers above the surrounding buildings, and shares prominence with other tall structures of the city, going up now on all sides.

The building is the shape of an H in plan, which gives the maximum amount of outside wall space for windows facing the south and the streets. In a building of this size, containing 1010 bedrooms, one finds various requirements fulfilled by having rooms of various sizes, with or without baths, rooms en

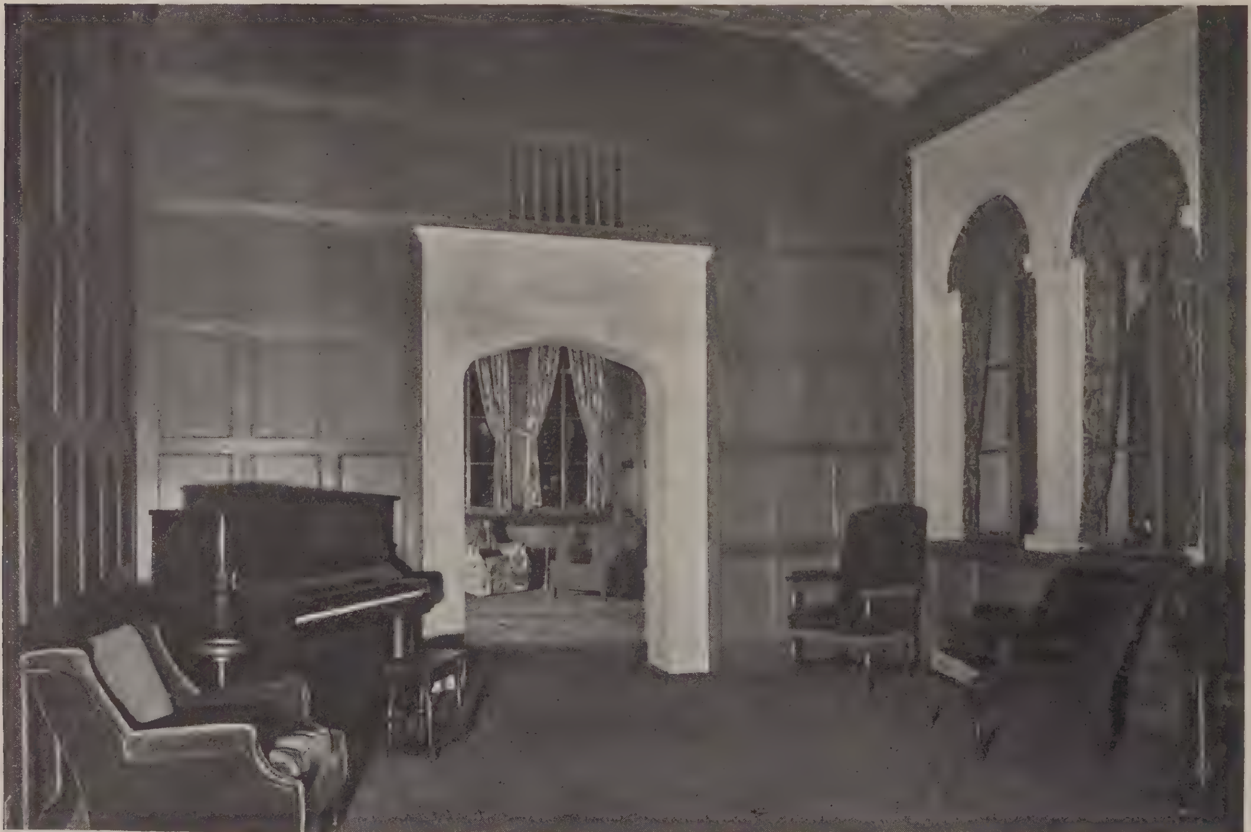


Photos. R. W. Trowbridge

Detail, Entrance Facade



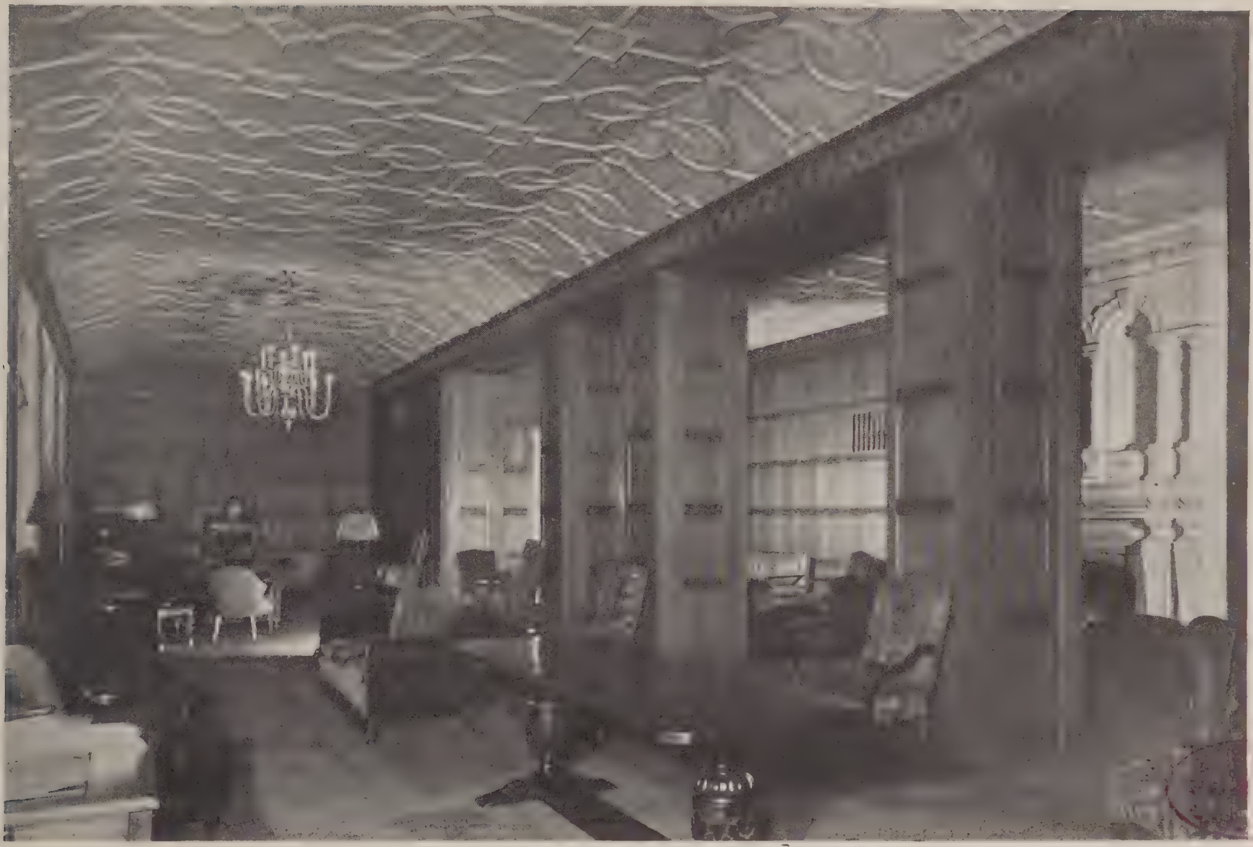
FOYER ON THE SECOND FLOOR



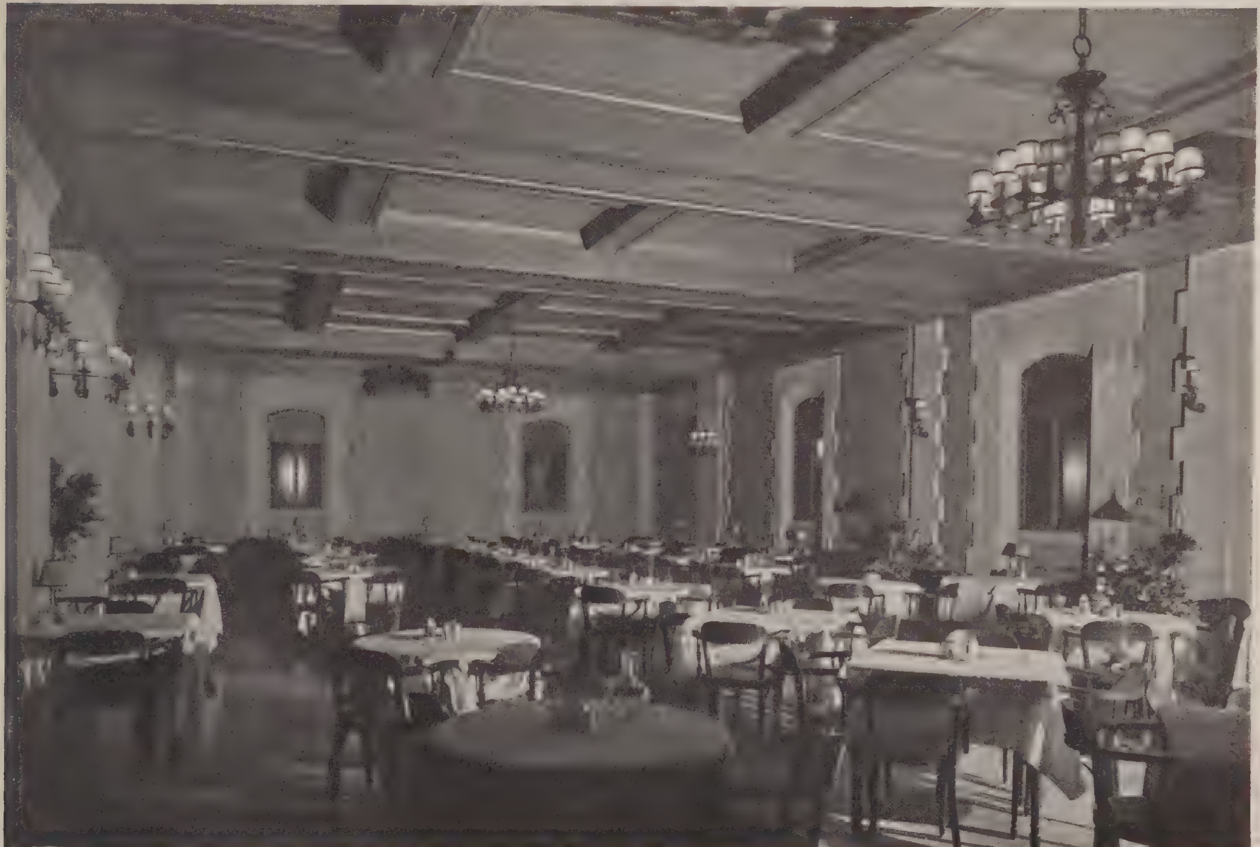
END OF THE LOUNGE OPENING INTO THE LIBRARY

CHICAGO ALLERTON HOUSE

MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATE ARCHITECTS



LOUNGE, LOOKING TOWARD FIREPLACE ALCOVE



GRILL ON THE ENTRANCE FLOOR

CHICAGO ALLERTON HOUSE

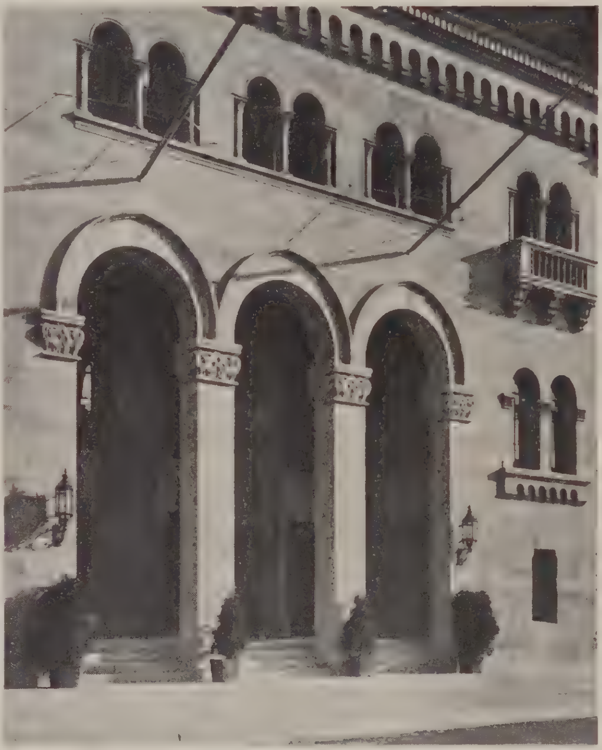
MURGATROYD & OGDEN, ARCHITECTS; FUGARD & KNAPP, ASSOCIATE ARCHITECTS

suite and rooms overlooking Lake Michigan or any desired exposure, making possible any combination.

The type of architecture used is somewhat different from that generally found in Chicago; it is of the early northern Italian style, with a solid three-story base of limestone in an arcade motif consisting of broad pilasters and triple arches, with a double-arched window motif in the upper portion and single or double windows below. At the main entrance this arcade motif is open, forming a loggia, over which is a smaller open arcade, and at the same level around the building there are arched windows in brick panels surrounded by stone, making it in reality a three-story base motif to carry the towering brick shaft of the building above. This shaft, which is all of brick, has pilasters at the corners of the pavilion motifs, with smaller intermediate pilasters. Windows occupy the fields between the pilasters, which are made interesting by a pattern of projecting headers. These pilasters terminate in a wall at the top where the square pavilions become of an octagonal shape, forming interesting crowning features where an arcade motif adds lightness to the top. The arcade is recalled in the main shaft of the front of the building by two-story arches divided by panels at the floor level. The sides of the building between the octagonal shaped towers show the walls set back and capped by bracketed overhanging balconies on heavy corbels, with trellised pergolas above. These four corner towers flank the main shaft of the building, which rises higher, forming a massive center tower crowned by the overhanging cornice and tile roof, on which stands an octagonal cupola containing the chimney. The structure is graceful and distinguished.

One enters the ground floor on Huron Street through a loggia which opens into the main entrance hall, two stories in height, where two flights of stairs lead to the first floor above. Between the two flights of stairs is an entrance on the ground floor to the elevator lobby, off of which are the grill room, coat room, cigar counters, telephone booths, entrances to the Michigan Avenue shops, main toilet rooms, and the spacious barber shop. The main dining room, lounge, library, women's reception room and a private dining room open off the elevator lobby. From this floor, up to and including the 22d floor, the space is occupied by bedrooms. On the 23d floor are a solarium, game rooms and lounges, while on the 24th, facing east and west, there are open roof gardens cooled in summer by lake breezes.

The architectural treatment of the interior is in the same style as the exterior, based on the best north Italian precedent. Passing through the entrance loggia with its vaulted ceiling, the main stair hall is entered through three doorways. The walls of this hall are rusticated up to the level of the second floor, where plain ashlar continues up to the spring line of the stone architraves around the arches. At the head of the double stairway are three arches, recalled on the opposite wall by a triple arched window motif, which looks out upon the main entrance loggia. The office lobby, which is also in the Italian style, has walls of stone laid in ashlar up to the cap mould, from which springs the low vaulted painted ceiling. The showcases, office screen, etc., are in rich dark brown walnut. Entering the main lounge, a new note is found in both treatment and style of architecture. It is a typical Tudor room, with high paneled oak wainscot, and window and door trim in stone. A carved cornice crowns the wainscot and supports an angular vaulted ceiling, inspired by that of the long gallery of Hever Castle, Kent. On the side wall is a massive stone fireplace, characteristic of this period, adding to a distinguished room.



Main Entrance Loggia

The main dining room has rough stucco walls with stone door trim and a flat-vaulted ornamented ceiling divided into two parts by a heavy beam supported on piers at the center of the room, and richly painted in gold and colors in the Italian style. The main grill and its lobby on the entrance floor are also this style, with painted decorative beam ceilings, the lobby having stone walls, and the grill stucco walls, stone floors and window trim. The floors of the principal public rooms and halls are either of marble or cloisonne terrazzo in two or three colors, designed appropriately to the style of each. The solarium, game rooms and lounges on the 23d floor have trim, base and band courses of brick, stucco walls, and in the octagonal corners are vaulted ceilings resting on terra cotta cornices.

The Smaller Civil Architecture of England

V. THE CUSTOM HOUSE, KING'S LYNN, NORFOLK

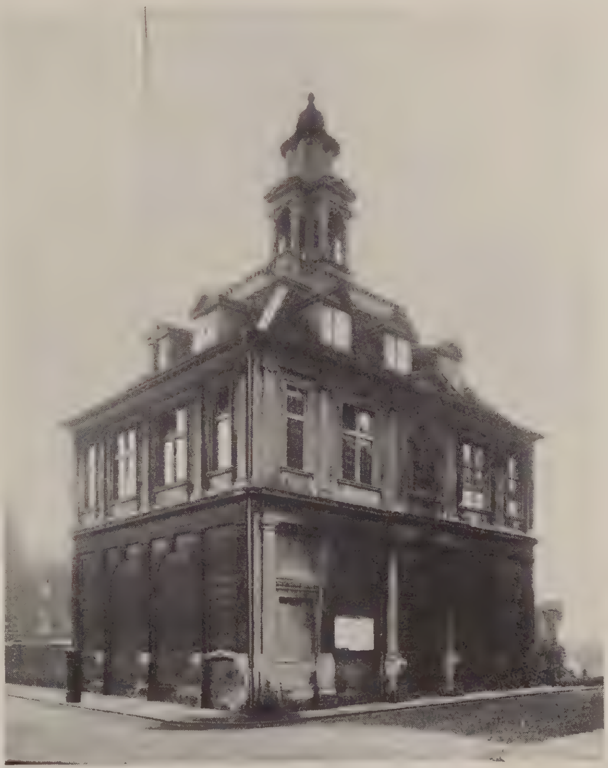
By ROGER WEARNE RAMSDELL and HAROLD DONALDSON EBERLEIN

THE Custom House at King's Lynn was built in 1683. It is a building of exquisite dignity and is most satisfying to look upon. Its goodliness lies in a felicitous union of distinguished proportions, virile and scholarly design, beautiful material, and the judicious employment of appropriate detail. With the exception of the wooden cornice, the cupola and the balustrade enclosing the roof deck, the exterior is entirely of Portland stone. As is so often the case, the stone is bleached and scoured by the action of wind and weather in some places, while in others it is blackened by the deposits of murk and sea mists, thus creating sharp contrasts.

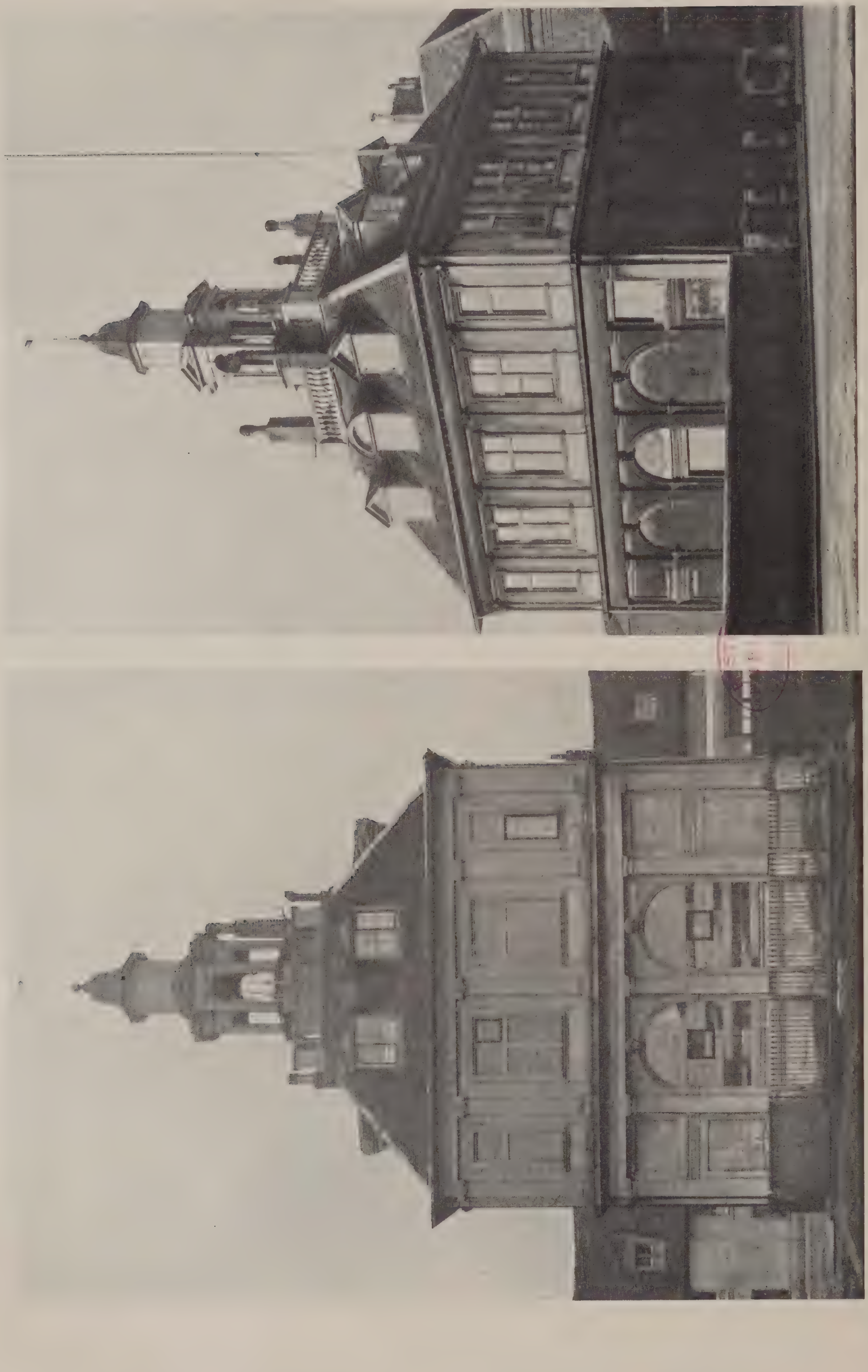
The Custom House was built originally as an Exchange for the merchants of King's Lynn, but soon after its erection it was bought by the government and devoted to the business of the port. At first it was intended that the three arches of the entrance front, the two arches opening on the quay, and the three arches of the southeast front overlooking the Purfleet should be open. Whether it was intended that the two arches on the remaining side should be open or closed it is impossible to say, but in all likelihood they were to be open. This would have been in accordance with the usage prevalent in other exchanges and town halls built about that period. Early pictures and various items of structural evidence together bear witness to the use at one time of open arcades on three sides; on the fourth, structural evidence points in the same direction. The walling up of the arches, however, very obviously took place not many years after the building's erection, probably at the time when it ceased to be the Exchange and became the Custom House, transforming a building with what was in effect an enclosed upper story above an open loggia—after Italian precedent—into a structure with four solid walls from the ground up. On the southwest side, overlooking the Purfleet, the wall rises sheer from the brick masonry of the dock. Here the doorway in the middle arch of the triple arcade seems to be original; the architrave is of stone, the mouldings are all carefully finished, and there is every evidence that it formed part of the original design and construction. This doorway appears to have opened on some sort of balcony or platform overhanging the water. Before they were walled up, at the date of the early alterations, the two arches at the side had low protecting paneled parapets of stone across the bottom. These are still clearly visible, and there can be no doubt of their having formed part of the original construction. In the main or land facade, the doorway is plainly not original; the architrave and the panels in the head of the arch are of wood, and it is easy to see where they were fitted in when the changes were made.

The Exchange, to call it by its first title, was conceived in the broad, robust spirit that characterized the spacious days of the late seventeenth century,—the days when King's Lynn was at the zenith of its commercial glory, and when its wealthy merchants lived in a manner more like that of the Dutch merchant princes than that of the traders in their own land. Relations with the Dutch ports were intimate, and Dutch influence can everywhere be seen in the architecture of King's Lynn dating from this period. It was even more clearly defined and pronounced than the contemporary Dutch trend elsewhere visible in England, a trend largely attributable to the repeated editions of Vingboon's book. The Batavian flavor can readily be recognized in the roof contours and general composition of the Custom House. The same may be said of divers other buildings erected in the town, and especially of the "Duke's Head" Inn, a hostelry since the latter part of the eighteenth century, but at one time the home of Sir John Turner, the wealthy and public spirited vintner who, at his "own cost and charges," built the Exchange and presented it to the town.

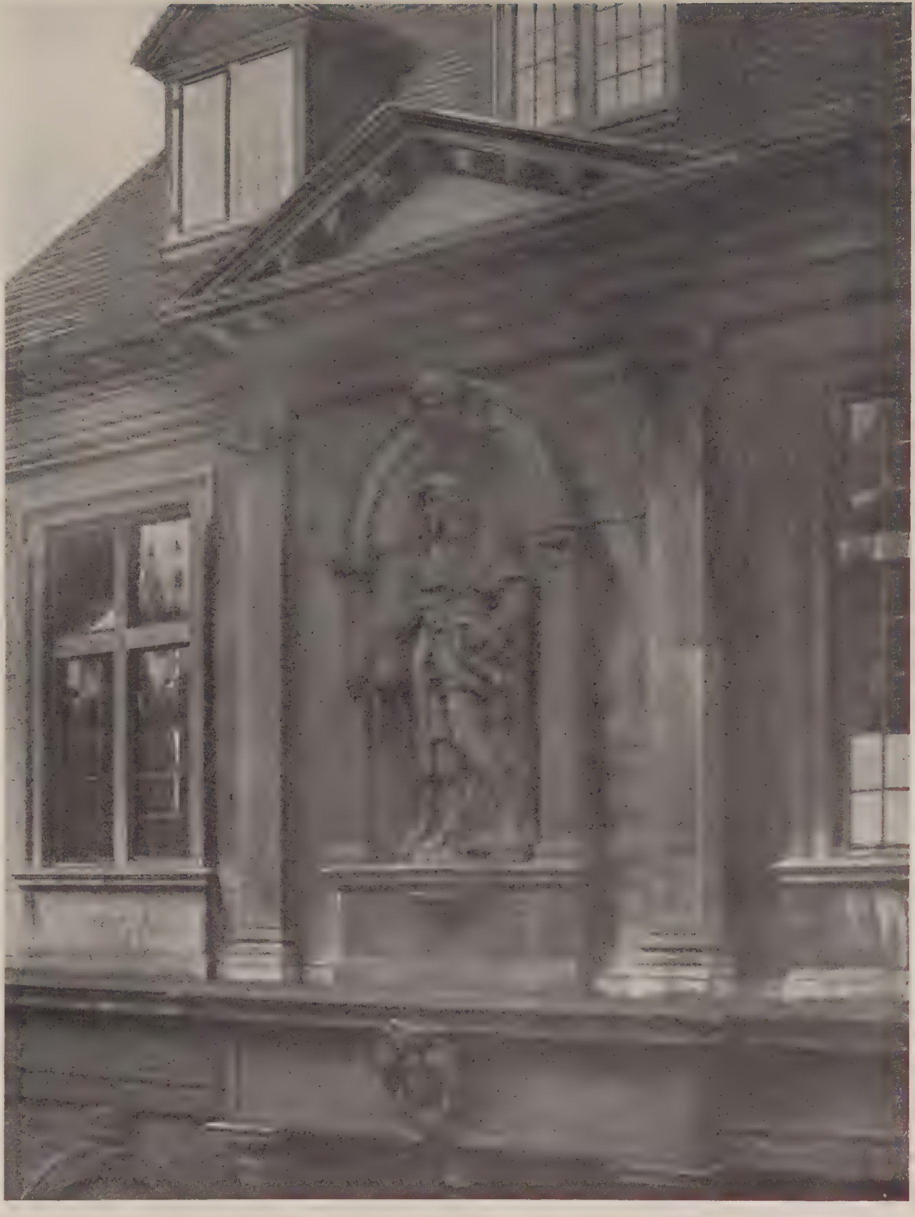
The design of the Exchange or Custom House has been sometimes mistakenly attributed to Sir Christopher Wren. Sir Christopher Wren need

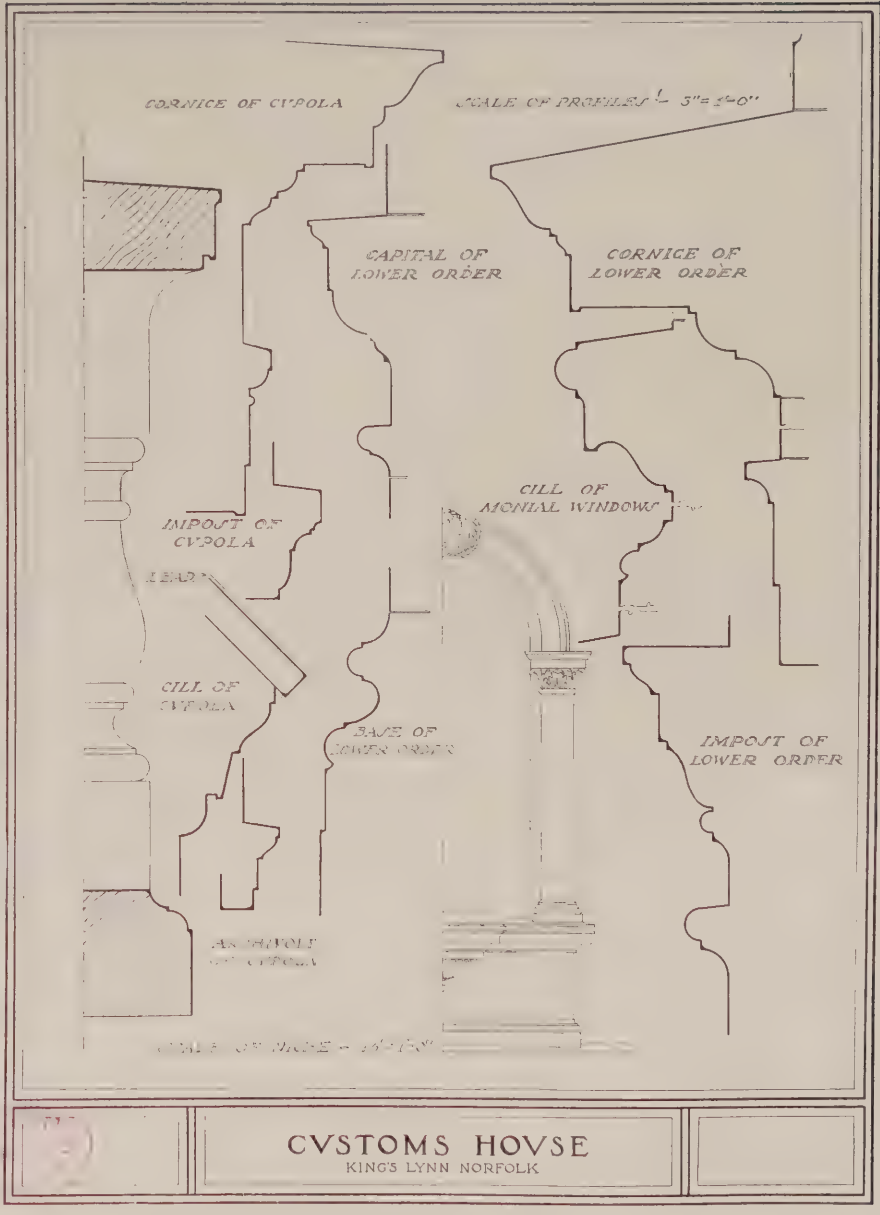


Custom House, King's Lynn, Norfolk

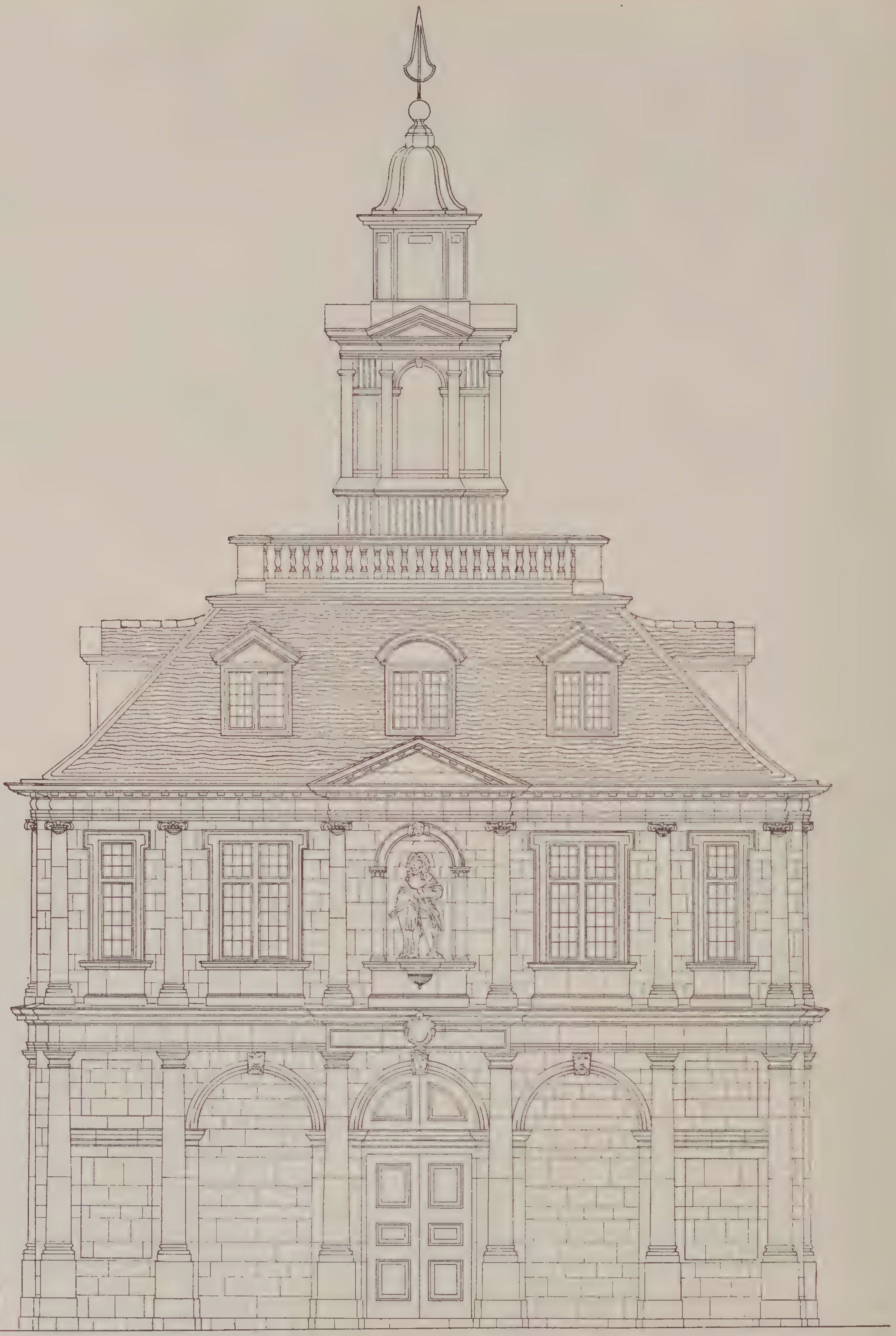


END ELEVATIONS OF CUSTOM HOUSE, KING'S LYNN, NORFOLK, BEFORE RESTORATION





DETAIL OF NICHE AND WALL TREATMENT ABOVE ENTRANCE, CUSTOM HOUSE, KING'S LYNN, NORFOLK



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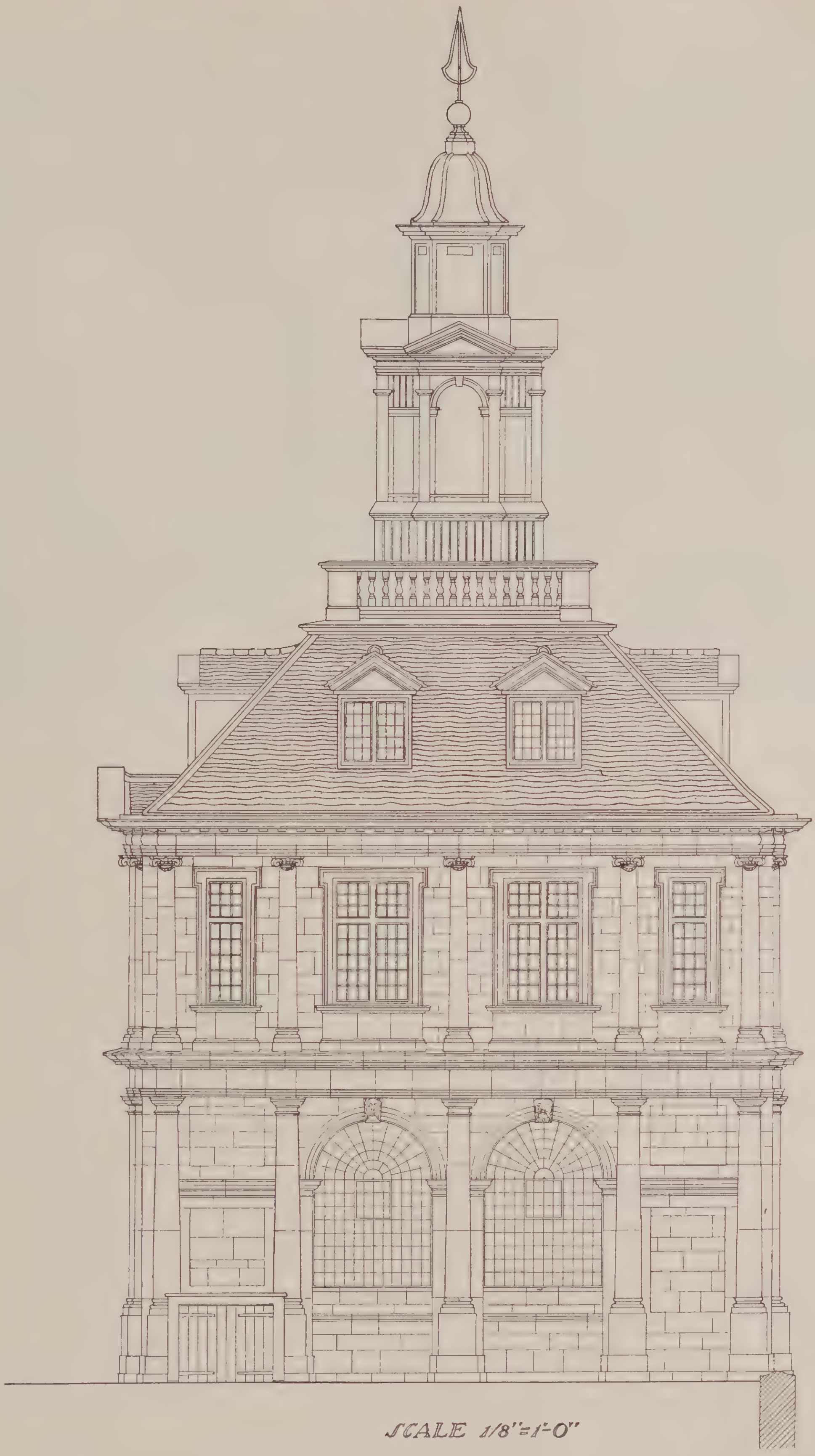
CVSTOMS HOVSE
KING'S LYNN NORFOLK



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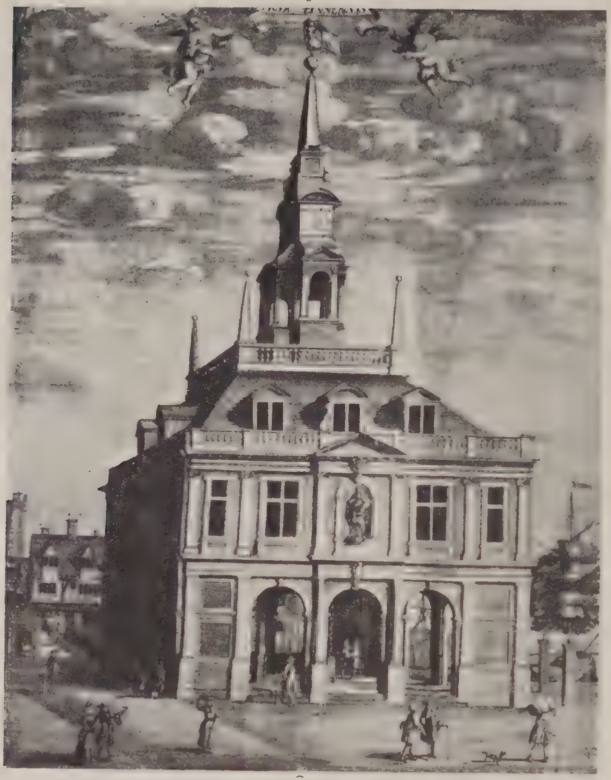
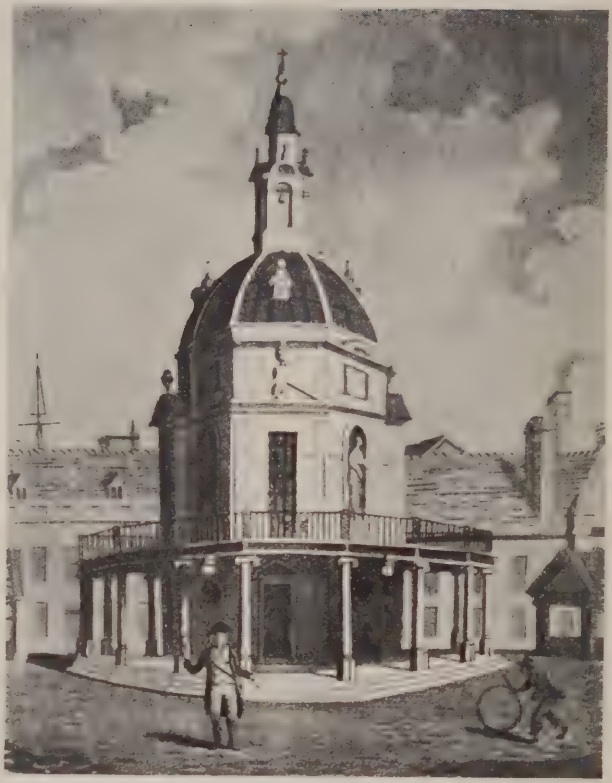


The Exchange at Lynn Regis in Norfolk
From an Old Print



King's Lynn Market Cross
From an Old Print

have had no cause to feel ashamed of it; but he was not its creator. Along with sundry houses and several other public structures in King's Lynn and the neighborhood, it was designed by Henry Bell, a local architect with whom the practice of architecture was an avocation indulged in at odd moments and not an all-engrossing profession. On one occasion when he had received ten pounds for designing a mural monument, he gave his whole commission to pay for gilding the work. It is much to be regretted that Bell did not practice continuously and that he left behind him so few proofs of his ability. Besides his church and domestic work, and some altar pieces and wall tombs, Bell designed the King's Lynn Market Cross with its flanking sheds, finished in 1710 and pronounced "one of the most finished small works of that time in England," a "graceful and accomplished" performance that would have done credit to Wren. This Market Cross was an octagon, surmounted by a dome and cupola. On the four sides which had no windows were statues, and a balcony went round it, supported by pillars." "On either side were the markets, which came in quadrants, finished with handsome fronts, and on which were painted emblems suggestive of their use." In an unpardonable fit of stupidity and blindness on the part of the town authorities, this little gem was demolished in 1831. Only a couple of old prints remain to show the present generation what it was like.

Henry Bell, descended from Sir Robert Bell, a Chief Baron of the Exchequer in the reign of Queen Elizabeth, was born in 1653. He was an Alderman of King's Lynn and twice Mayor of the Corporation. As well as being a person of means and local consequence, a man of parts and general attainments and an amateur skilled in the art of architecture, he also had some ability in the direction of painting and engraving. He engraved a number of plates of local architectural subjects, and two of his engravings, one of the Market Cross and the other of the Custom House, are shown in the accompanying illustrations. It will be seen, on reference to the latter, that there are several points of difference between the appearance of the building in the engraving and its actual appearance at the present time. Apart from the walling in of the arcades,—which we know was subsequently done,—it is impossible to say whether there was ever a balustraded parapet above the cornice, whether the upper parapet ever had Palladian obelisks* at the corners, or whether the cupola was ever of slightly different design. Lower parapet, obelisks and superstructure may have existed in Bell's mind as a vision of what he would have liked to see, and may have been closely akin to the angels frolicking in the upper air.

Bell died in 1717. What few things he left are sufficient evidence of his genius. Sir Reginald Blomfield says, "His few undoubted designs show a distinct and charming manner of his own," and with him we may well deplore "that such scanty record remains of this modest and very able architect."

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* Within the past year His Majesty's Office of Works has removed the disturbing chimney stacks that previously marred the roof. The flues are now brought up through the piers of the balustrade surrounding the roof deck. The brick chimney stacks recently removed were unquestionably not a part of the original construction. The flues now completed through the balustrade piers are *old* flues, a fact that strongly favors the hypothesis which has been suggested here.

ENGINEERING DEPARTMENT

The Cost of Heating Office Buildings

By SAMUEL M. GREEN COMPANY, Engineers and Architects, Springfield, Mass.

FOR the purpose of analyzing maintenance costs and to determine upon types of heating plants, the architect will find the accompanying figures on heating costs of particular reference value. These figures were determined after careful analysis by the Samuel M. Green Company, Architects and Engineers, of Springfield, Mass.

Seven office buildings in Springfield were taken as subjects, and the heating costs were determined after careful observation. The buildings are described hereafter, and the table below gives these heating costs in detail:

Building No. 1

177′ 9″ x 189′ 8″, 4 stories and basement.
Located on street corner.
Stores on first floor.
Other floors occupied partly by hotel and by offices.
Boilers, 2 66″ horizontal tubular; 98 3″ x 16′ 0″ tubes; 10 years old; grate surface 66″ x 66″.
Radiation—cast iron direct, 11,000 sq. ft. total.

Building No. 2

73′ 8″ x 73′ 7″, 4 stories and basement.
Located on a street corner.
Stores first floor, offices above.
Boiler: cast iron sectional; 20 years old; grate surface, 42″ x 48″.

Radiation:	sq. ft.
Cast iron direct	2,139
Distributing piping	534
Total radiating surface	2,673

Building No. 3

131′ 6″ x 90′ 5″, 2 stories and basement.
Located center block, 131′ 6″, facing street.
Stores first floor, offices second floor.
Boiler: 1 42″ horizontal tubular; 50 2½″ x 13′ 0″ tubes; 12 years old; grate surface 42″ x 54″.

Radiation:	sq. ft.
Cast iron direct	2,384
Distributing pipes	596
Total radiating surface	2,980

Building No. 4

61′ 0″ x 99′ 7″ and wing 51′ 0″ x 44′ 0″.
Located on street, 99′ 7″ and alley.
4 stories and basement.
Stores first floor, offices above.
Boiler: 2 54″ horizontal tubular; 72 3″ x 14′ 0″ tubes; 24 years old; grate surface 48″ x 56″.

Radiation:	sq. ft.
Cast iron direct	4,635
Distributing pipes	1,158
Total radiating surface	5,793

Building No. 5

160′ 5″ x 43′ 10″ and wing 18′ 5″ x 40′ 9″.
Located corner of two streets.
Stores first floor, offices above.
Boiler: cast iron sectional, 18 sections; grate surface 36″ x 72″.

Radiation:	sq. ft.
Cast iron direct	2,693
Distributing pipes	673
Total radiating surface	3,366

Building No. 6

190′ 0″ x 171′ 0″ with court in center.
Located on corner of streets.
Portion three stories, portion five stories; basement under whole.
First floor stores, above living rooms and hotel.
Boiler: 2 60″ horizontal tubular; 76 3″ x 16′ 0″ tubes; 14 years old; grate surface 54″ x 60″.

Radiation:	sq. ft.
Cast iron direct	8,326
Distributing pipes	2,080
Total radiating surface	10,406

Building No. 7

57′ 6″ x 121′ 0″.
Located on corner of street and alley.
Six stories and basement.
Stores first floor, offices above.
Boiler: 1 54″ horizontal tubular double pass; 36 3″ x 12′ 0″ and 36 3″ x 9′ 0″ tubes; 29 years old; grate surface 48″ x 54″.

Radiation:	sq. ft.
Cast iron direct	6,216
Distributing pipes	1,554
Total radiating surface	7,770

COMPARATIVE COSTS OF HEATING VARIOUS TYPES OF OFFICE BUILDINGS

An Analysis Made by Samuel M. Green Company, Architects and Engineers, Springfield, Mass.

The following table gives the cost of heating certain office buildings located in the business center of Springfield, Mass. All of the buildings are occupied on the first floors by stores and on the floors above by offices, with the exception of No. 1 and No. 6, which are occupied on the first floors by stores and on the floors above for hotel purposes.

The fuel used is bituminous coal, and its average price in the bins was $10.57 per net ton.

Building	Cost of Fuel	Cost of Labor	Total Cost	Cubic Feet in Buildings	Cost per Cu. Ft. for Heating	Sq. Ft. of Radiation	Cost per Sq. Ft. of Radiation for Heating
No. 1	$3,593.32	$1,120.00	$4,713.32	823,815	.00572	11,000	.42848
No. 2	799.52	496.00	1,295.52	253,170	.00512	2,673	.48467
No. 3	814.47	418.00	1,232.47	193,651	.00636	2,980	.41359
No. 4	2,068.15	640.00	2,708.15	407,441	.00665	5,793	.46749
No. 5	1,064.70	480.00	1,544.70	204,233	.00756	3,366	.45891
No. 6	4,611.91	1,120.00	5,731.91	797,006	.00719	10,406	.55083
No. 7	......	......	3,200.00	430,519	.00743	7,770	.42484

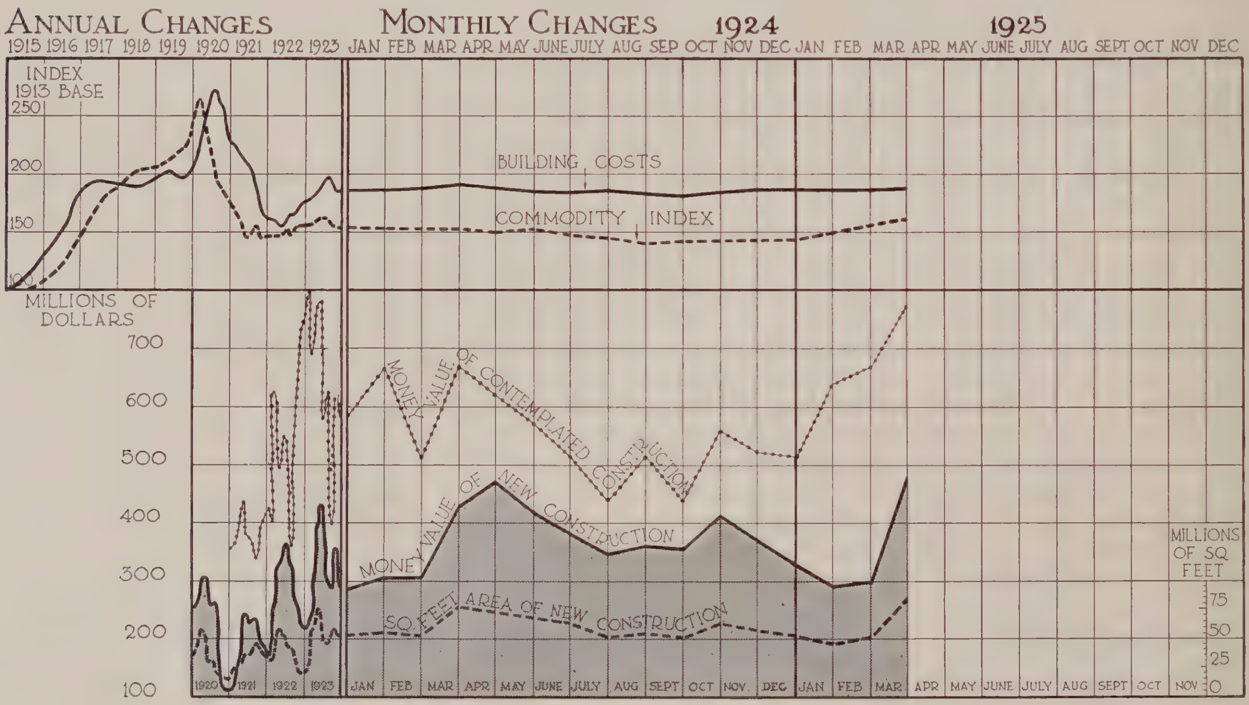
THE BUILDING SITUATION

A MONTHLY REVIEW OF COSTS AND CONDITIONS

According to reports of contracts let (F. W. Dodge Corporation) the month of March showed a great increase in building activity. In fact March was a record-breaking month, being 11 per cent higher than the corresponding month of last year. Public Works and Utilities continue to increase, and School Buildings, which amounted to 9 per cent of the total, show an increase over last month. Residential and Commercial Buildings show some falling off. The total value of new building construction started in the first three months of this year is $1,076,569,300, which is an increase of 4 per cent over the same period last year. It is interesting to note, however, that there has been a great decrease of activity in the metropolitan area of New York City with new building contracts reported amounting to 32 per cent less than in the same period last year. In the Northwestern states there has been a decrease of about 8 per cent, but all other districts in the country show a substantial gain. The territory outside of New York shows a general increase of 21 per cent over the first quarter of 1924, which is convincing indication that building activity is being decentralized, and that more prosperous conditions throughout the country will result in a general increase of investment in new buildings.

The plans filed during the month of March assume record-breaking proportions, totaling in all over $770,000,000 of contemplated new work. This condition would seem to indicate a heavy volume of contract letting during the months of April and May.

Building labor conditions as reported from various sections of the country are encouraging. It seems to be the consensus of opinion on the part of organized labor that the prevailing rates of last year are not to be disturbed during the present year, and to a great extent this phase of construction cost has become fairly well stabilized, because in most of the trades a fair and steady volume of production is to be noted. Transportation conditions are good, and manufacturers' stocks are such that orders are being filled with no unreasonable delay. It would appear that a very large volume of construction will be started during the spring building season, and conditions promise a speedy completion of these jobs. Finance still continues to operate on a liberal basis.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

Important Principles of Architectural Economics

PART I. PRELIMINARY INVESTIGATION BEFORE PLANNING A NEW BUILDING

By JAMES M. GREEN, JR.

THE actuating motive for the construction of all buildings, other than those serving municipal, county, state and federal governments and those for religious and social purposes, is to yield revenue. This revenue or investment return is regarded strictly in terms of money value, excepting in those particular instances where advertisement and prestige are of studied commercial importance. It is obviously impossible to foresee all the contributing elements which may determine the success of a structural venture, or to correlate all those elements which may be opposing; careful study, however, conducted by men with discriminating judgment, can determine with reasonable accuracy the possibilities of good investment or the chances of there being an inadequate yield upon the capital outlay which will be involved in the venture.

Owners primarily base their pride in ownership upon money returns rather than upon desirable qualities of architecture, but artistic merit in a building will not be discounted by intelligent and successful ownership, for inappropriateness of design is a fundamental which tends to impairing income values. While readily demonstrable that architectural beauty is a commercial asset, it is not apparent at just what point increased expenditure for ornamental features will cease to develop a correspondingly increased revenue. It is, therefore, essential that the designer should frankly recognize the fact that there is a line of demarkation beyond which he must not pass if the maximum revenue is to be obtained.

Economic Study Important to Architect

The greater part of an architect's service combines knowledge of economic science with a highly technical art. It is the duty of the architect to produce a design well balanced in architectural quality, although only a meager part of the total expenditure is devoted to the architectural "picture." It is likewise the duty of an architect to protect the financial interests of his client by producing a design well balanced in terms of commercial success. These things can be done only by an exhaustive study of the financial opportunities offered, since no matter how handsome the structure may be, utility is expressed in actual money values. The average architect cannot maintain a specialized force, familiar with the intricate design peculiar to the functions of some modern buildings. It is the duty of the architect, however, to thoroughly understand the business of building design and construction as well as to bring into contact with his problems in its special phases those whose specialized knowledge must be asked to coöperate for the success of the project.

I shall confine myself in this discussion to those buildings which are erected for commercial purposes, to those of considerable height, such as store or loft buildings, apartments, hotels and office buildings. In each of these types there are many individual considerations which may be termed fundamentals of successful investment. Some of these elements are common to all types of structures, a few of them being involved in only one. These considerations themselves are in turn affected by the kind of building, its locality, and the degree of efficiency to be attained in its design.

When a cursory examination points out a good opportunity for profit, a thorough study should be made before the financial plan is prepared for presentation to possible investors. In grouping the various elements of a problem of this kind, so as to make them more readily studied, it requires balanced perception to assimilate facts and avoid preparing a perfunctory estimate based merely upon more or less accurate hearsay, tinged with self-interest. The growing concerns of a community are the units upon which the success of a building enterprise depends. It is, therefore, obviously necessary that every relative element between different forms of business be recognized. While it is impossible to prepare a rigid schedule upon which economic investigation may be made, the chief fundamentals reached are herein set forth. They are derived from admitted premises, reached by valid steps of reasoning, and subject to local inquiry. While the rules for obtaining successful results manifestly cannot be standardized, no doubt these theoretical demonstrations will assist in forming the proper elemental considerations.

The three cardinal elements essential to an economic investigation and of prime importance toward determination of the type the building is to assume, may, for consideration here, be thus defined:

The amount of gross investment, which includes the total cost of the land, fees, interest during construction, taxes, cost of improvement, operative capital and all costs incurred up to the time of occupancy.

The amount that can be borrowed upon mortgage on the completed structure and land.

Consideration of the net periodical receipts.

These elements are all subject to subdivision, and the details of each are so intertwisted and reciprocal in relation that it is impossible to consider each one in a particularly individualistic manner. For further convenience, our problem will be discussed under these prime headings:

I. Location.
II. Determination of Investment Type.
III. Planning.
IV. Financial Analysis.
V. Variable Fundamentals Affecting Returns.

Location (I): Essentials of determination.
  Extent and demand of permanency of service.
  Existing and potential competition: size; growth; profits.
  Rentable ratios.
  Rental rates.
Determination of Investment Type (II): To be in accordance with laws of supply and demand.
Planning (III): Functions determined by design: number of rentable stories; ratio of rentable area to gross area; ratio of build-area to lot area; cost of building.
  Coöperation with specialists.
  Construction with reference to: efficiency; artistic design; depreciation.
Financial Analysis (IV): Method of financing.
  Ultimate cost affecting investment.
  Carrying charges and operating expenses.
  Independent variables; taxes; mortgages.
  Rented area, fixing rental area.
  Depreciation.
Variable Fundamentals Affecting Returns (V):
  Cost of land.
  Average annual gross rental.
  Cost of building.
  Cost of operation.
  Rentable stories.
  Ratio of rentable area to gross area.
  Ratio of building area to lot area.

Location (I.)

1. *Functions of Locality and Structure.*

Considerations that tend to create high values in a mercantile section are central location, corner influence, a reasonably wide street, level ground, and the presence near by of institutions rendering banking, professional and other supplementary services dependent upon or responsible for the density of traffic. On the other hand, adverse influences are vacant buildings, parks, buildings used for purposes other than those to which the district is devoted, dilapidated and unsightly structures, buildings in process of construction, difficult grades, and in fact anything that interferes with the homogeneity of the district.

2. *Cost per Square Foot or Front Foot of Land.*
3. *Regulations Controlling Lot Area Utilized.*

Local municipal legislation controls this situation.

4. *Rental per Unit Area as Affected by Environment.*

The square foot, the adopted standard of floor measurement, varies in the rental rate for ground floors and upper floors according to utility in various parts of a city. Unit rentals are usually highest in jewelry stores, show rooms, millinery and haberdashery shops. Spaces for banks and trust companies are also costly, and such rates are very stable in comparison with those for areas for mercantile purposes.

Locating a specialized type of building in a community of low grade tenants may throttle the building's economic life. If rentals around the proposed site are studied, they often appear inadequate. Analysis will generally show that the store fronts are shoddy or carelessly designed, that the offices are poorly planned or inaccessible, and that the equipment and service are unsatisfactory. In a better building, however, higher rentals could be obtained. If the present owners in any given district were to organize and to terminate bad leases, remodel store fronts, improve street lighting and generally tone up the neighborhood character; if they were to induce high grade tenants to locate in the remodeled buildings, even if the first few years' rentals were inadequate, the value of the land would soon be enhanced and a higher type of tenants attracted to the office floors, thus improving the buildings' character.

5. *Changes Incident to Civic Growth.*

By a study of the future limitation of function, it is possible at the very outset to definitely plan an extraordinarily long economic life for the building. This may be done by designing for future conversion of the building, and by preparing by means of a sinking fund for financing improvements.

6. *Corner Influence.*

Plots at the intersections of streets possess greater value than inside lots. In such a location a business will command superior transportation advantages, will make a stronger appeal to the passing public, and will offer as well to the tenants of the building abundant light and air. All this, naturally, commands higher rentals.

Determination of Investment Type (II.)

Men with experience in the construction and operation of commercial structures will ask in relation to each prospective site these questions:

Will the site be developed to its highest and most permanent use by an office building, a hotel, an apartment house, or what?

Will the rentals justify a substantial investment now and later?

How many stories may the building be given without there being danger of an excessive number of vacancies?

Will the store rentals be adequate to meet their portions of taxes, interest and insurance?

What are the property's economic possibilities?

What is likely to be the period of its economic life? How long will it continue to be desirable?

The first step, after one has determined to erect a building, is to carefully investigate the local requirements of prospective tenants. These requirements may vary widely, due to diverse methods of conducting business; the seclusion or accessibility of the heads of firms; the volume of business conducted individually, and customs as to sizes of office units and service. So much for a commercial venture. One readily understands that for hotels, apartment houses or other types of buildings, the investigations must assume a specialized nature covering an individual field. In each phase of the undertaking the inquiries must be substantiated by men of experience, and actual comparisons should always be made where possible. Neither mathematics, regulations nor computations can act as a substitute for common sense and good judgment. Undue optimism during a preliminary survey, added to an underestimation of capital requirements, might sell stock, but the securities of the holding company would be depreciated and indeed seriously imperiled. Failures can almost always be avoided by means of thorough analyses made by persons familiar with the phases of structural investment. The laws of economics are rigid, and the theories involved in the solution of an investment problem are no less definite than the theories of architectural design. Financial analysis is not particularly complicated, and the substance of inquiry is arrived at by simple thinking.

The probable rental of a proposed building can be best determined by basing the estimate of rental return on the rates obtained for space in the same class of building in the immediate vicinity. If there exists no development of as high a class as that proposed, a comparative analysis can be made and a reasonable decision reached regarding rental rates by a study of the ratios between types. For instance, these general types of construction exist:

Fireproof; semi-fireproof; slow-burning; ordinary construction; poor construction.

Assuming that the proposed building is to be of the most approved known construction, it will then be rated, theoretically, upon the basis of 100 points for each of these considerations: General aspect; character of planning and construction; owner's service.

By comparing one type with the other, the ratio of advanced percentages between the types can be discovered, and these differences in the scale of rentals can be built up to fix the ultimate rental rates of the new building.

Inasmuch as rental rates are based upon the square foot as the unit measurement, it is necessary to understand just how to arrive at the actual footage of income-producing space. This will be discussed more completely later, but here I shall briefly define the different divisions or topics under which a building is considered:

Table of Rentable Ratios; Areas of No Return, which are areas of walls, partitions, toilets, halls, elevator shafts, stairways, etc.; Rentable areas which are income-producing; Gross areas, which means the entire area within the perimeter of the building.

These schedules will be of assistance in comparing the various types of utilitarian buildings:

General Aspect—100 points total.
20 points, Neighborhood character.
20 “ Appearance of the building.
20 “ Accessibility for business.
20 “ Proximity to banking, commercial, and professional services.
20 “ Class of tenants.

Character of Planning and Construction—100 points total.
Type: 50 points.
50 points if Fireproof.
35 “ “ Semi-fireproof.
25 “ “ Slow-burning.
18 “ “ Ordinary.
10 “ “ Poor.
Interior Finish: 25 points.
3 points, Corridors.
3 “ Stairs.
8 “ Lobby.
8 “ Walls and ceilings.
3 “ Floors.
Planning: 25 points.
15 points, Ventilation.
10 “ Orientation.

Owner's Service—100 points total.
Engineering: 40 points.
15 points, Elevator.
12 “ Heating.
8 “ Hot water.
5 “ Lighting.
Janitor Service: 30 points.
10 points, Condition of entrance.
10 “ Cleaning of public spaces.
10 “ Individual service.
    5 points, Cleaning.
    3 “ Repairing.
    2 “ Personnel.
Toilets: 5 points.
3 points, Access.
3 “ Sanitation.
3 “ Fixtures.
3 “ Ventilation.
3 “ Service.
Good Will: 15 points.
7 points, General maintenance.
5 “ Tenants' good will.
3 “ Public good will.

Planning (III.)

The problem of design is not to be discussed here excepting in its general relation to the investment. Each building presents its individual and specific consideration, and each must be thoroughly analyzed in respect to itself. This applies not only to types of buildings but to each scheme prepared for any one type. To explain the psychology of planning would require an architectural education, but to analyze a plan in relation to its economic possibilities involves merely a comparatively small knowledge of business principles.

The Functions Determined by Design are:

1. Number of rentable stories in the building.
2. Ratio of rentable area to gross area. Ordinarily, normal ratio of area would be:
    Office buildings ......72 per cent of gross area.
    Loft buildings ....85 " " " " "
    Stores and show rooms.67 " " " " "
    Apartment houses ....64 " " " " "
3. Ratio of building area to lot area.

    The percentage of the total land area occupied by the building depends upon its function, the plan arrangement and local conditions. Light, air and architectural symmetry determine this. Corner buildings and tall structures with low adjoining buildings of a permanent nature are at a considerable advantage. There is always risk of investment impairment when coöperation of surrounding land owners is depended upon too much, since ownerships and conditions may change.
4. Cost of building per cubic foot.

    This cost will vary largely with the quality of workmanship, kind of construction used, the skill of the architect and contractor, and the governing contract documents. Cost is greatly reduced by uniformity in design of fabricated steel, reinforced concrete and other building materials.

    The height of the building likewise affects the unit costs, because the taller it is the greater the column and footing loads, so that the cost of columns and footings is about in proportion to the number of stories. Since the cost of girders, beams, walls, windows, etc., will be in proportion to the cubic contents of the building, and since the cost of these items in total is far in excess of that of the columns, footings and excavations, it may be concluded that the cost of the building is in proportion to its volume.

To present the principles upon which success depends and in such a manner that practical application may be made with accuracy and convenience is a vast undertaking, and one that is well worth while. Hearty coöperation between the architect and prospective management will develop to a high degree efficiency in control and service, with a subsequent reduction in operating expenses.

The feature of depreciation in structural development is of such vast importance that it may mean the difference between the success and failure of the enterprise. Study and observation prove that the economic or commercial life of a building does not exceed 50 years, and perhaps less. Physically it may last 100 or even 200 years, but new devices and new methods of construction or changes in business requirements will destroy it as a competitor with newer buildings.

How then may this loss be best provided against? By a study of the changes incident to civic growth it is possible to design a building which can be altered later to serve another purpose, but such a provision usually adds considerably to the initial cost. The most conservative method of offsetting future limitation of utility is to set aside an annual depreciation sum and to invest the principal and its accrued interest in safe securities. If a sum equal to 1 per cent of the cost of the building is set aside annually and invested at 4 per cent, it will about equal the cost of the building in 40 years.

The average owner usually feels that depreciation will be amply offset by unearned increment on the land and the value of the building as a going concern. Even if such be the case, it is necessary to actually consummate a sale in order to profit thereby. It is far wiser to face the issue frankly, and to meet depreciation with funds in the bank and thus maintain high standards which attract good lessees,—those who will pay reasonable rental rates.

(The Second Part of This Article, Covering the Financial Analysis, Will Appear in the July Issue)

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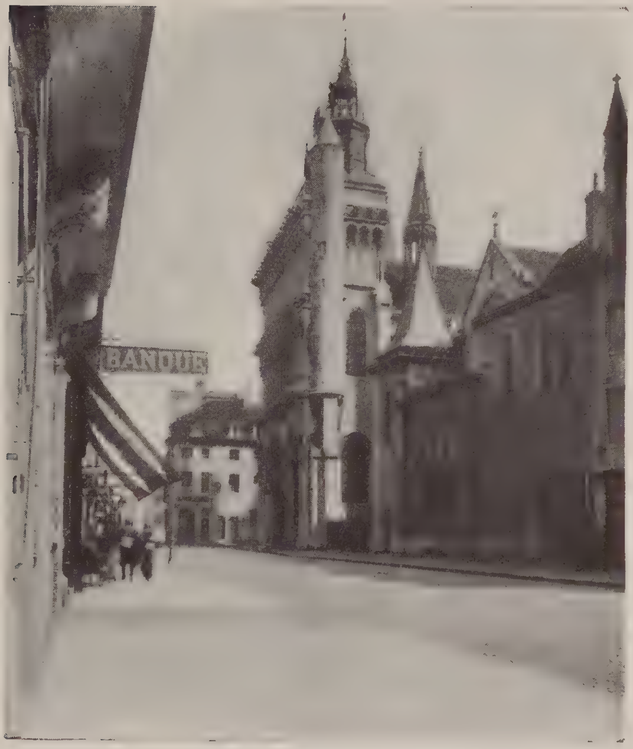
The Forum Studies of European Precedents

STREET FACADES IN DIJON

PART II

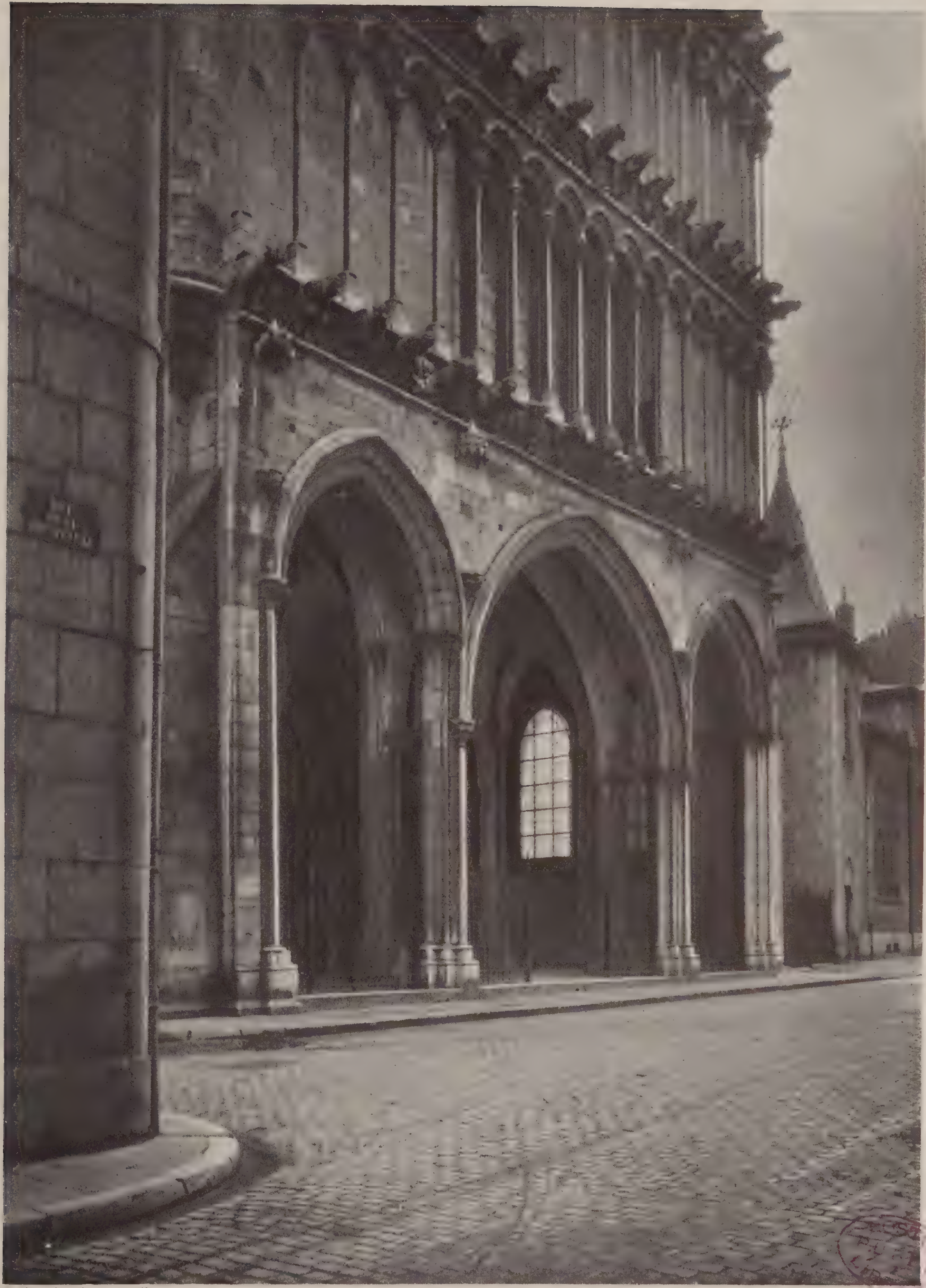


Church of Notre Dame, Dijon

THE second group of street facades in Dijon includes not only several charming examples of early French Renaissance town houses, but also two interesting views of the front of the Church of Notre Dame. In a way the main facade of this church, which rises abruptly from the sidewalk level, suggests a type of ecclesiastical design prevalent in the large cities of America, where land is so costly and so difficult to secure that the church edifice usually occupies every square foot of available land.

The Romanesque-Gothic spirit of the Church of Notre Dame is in marked contrast to the refined Renaissance detail and charm of proportion of the several house facades found on the Rue de la Prefecture and the nearby streets, six of which appear in this group of the Forum Studies of European Precedents. An interesting use of wall panels combined with rusticated pilasters, rugged wheel-guards and fine entablature surmounted by a balustrade in classic feeling, marks the courtyard entrance, between the wings of the building in Plate 43. The street facades of these two narrow wings show an unusual treatment of quoins, in which the masonry joints do not line with the breaks in the quoins themselves. The windows in each of these bays are dignified and monumental in treatment; the lower windows have shallow balconies of wrought iron, unusually fine in design. The upper windows break through the Mansard roofs.

In the Place des Ducs a small, two-story building on one of the street corners shows an interesting shop window, surmounted by a niche, flanked by ornamental panels executed in Renaissance details. The corner of this same building has a most unusual and interesting round turret, supported well above the sidewalk level by massive mouldings and crowned by a mosque-like roof and finial. The architectural details of this corner turret are suggestive of the work of the period of Francis I. The four houses in the Rue de la Prefecture, shown in this group, have restraint and dignity in design. Carefully studied fenestration, including the interesting dormer details, no two of which are alike, is full of inspiration to the modern architect who wishes to adapt French Renaissance architecture to present-day American city house facades.



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Photos. Paul J. Weber

ENTRANCE DETAIL, CHURCH OF NOTRE DAME, DIJON

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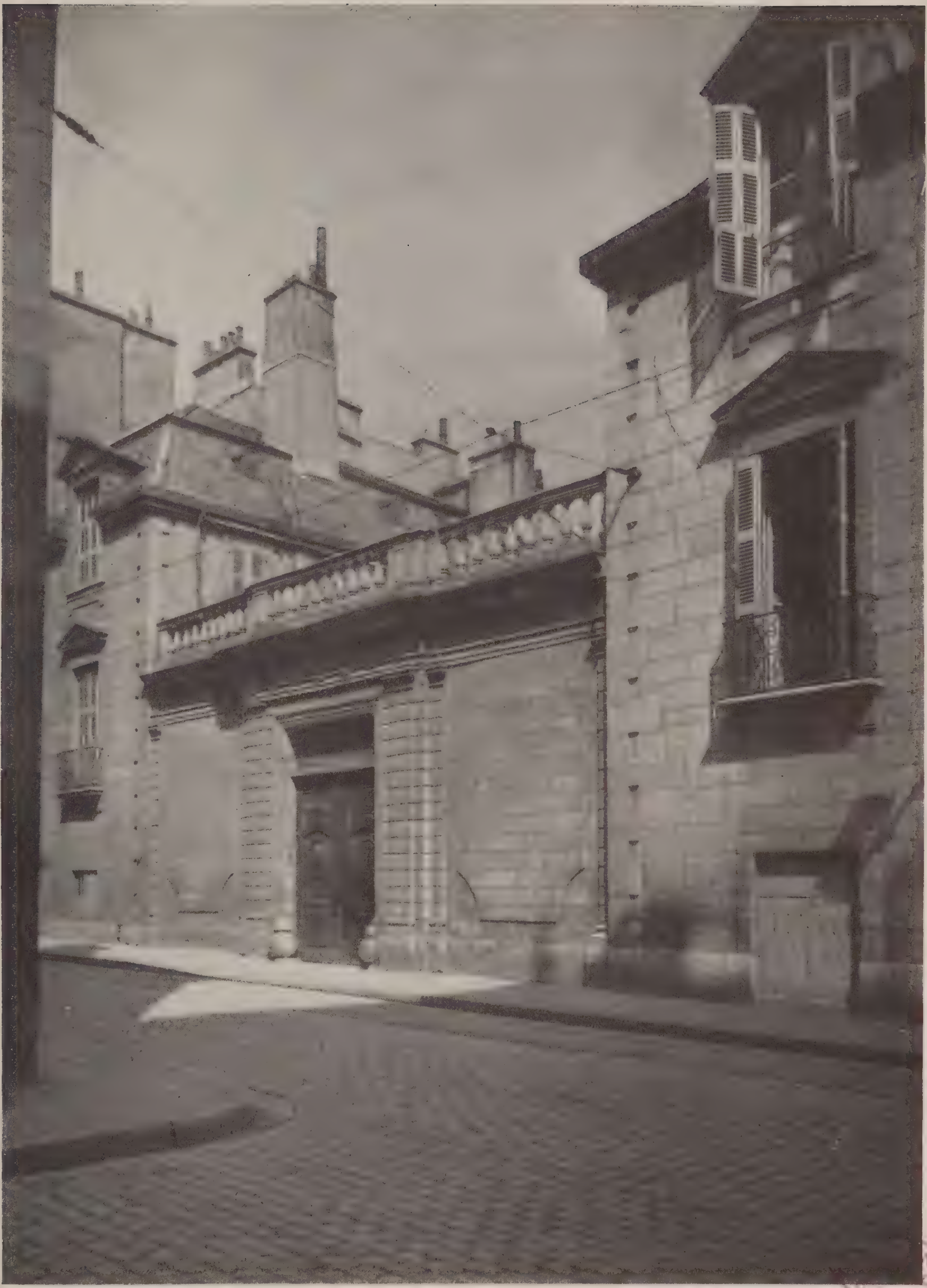

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A STREET FRONT IN DIJON

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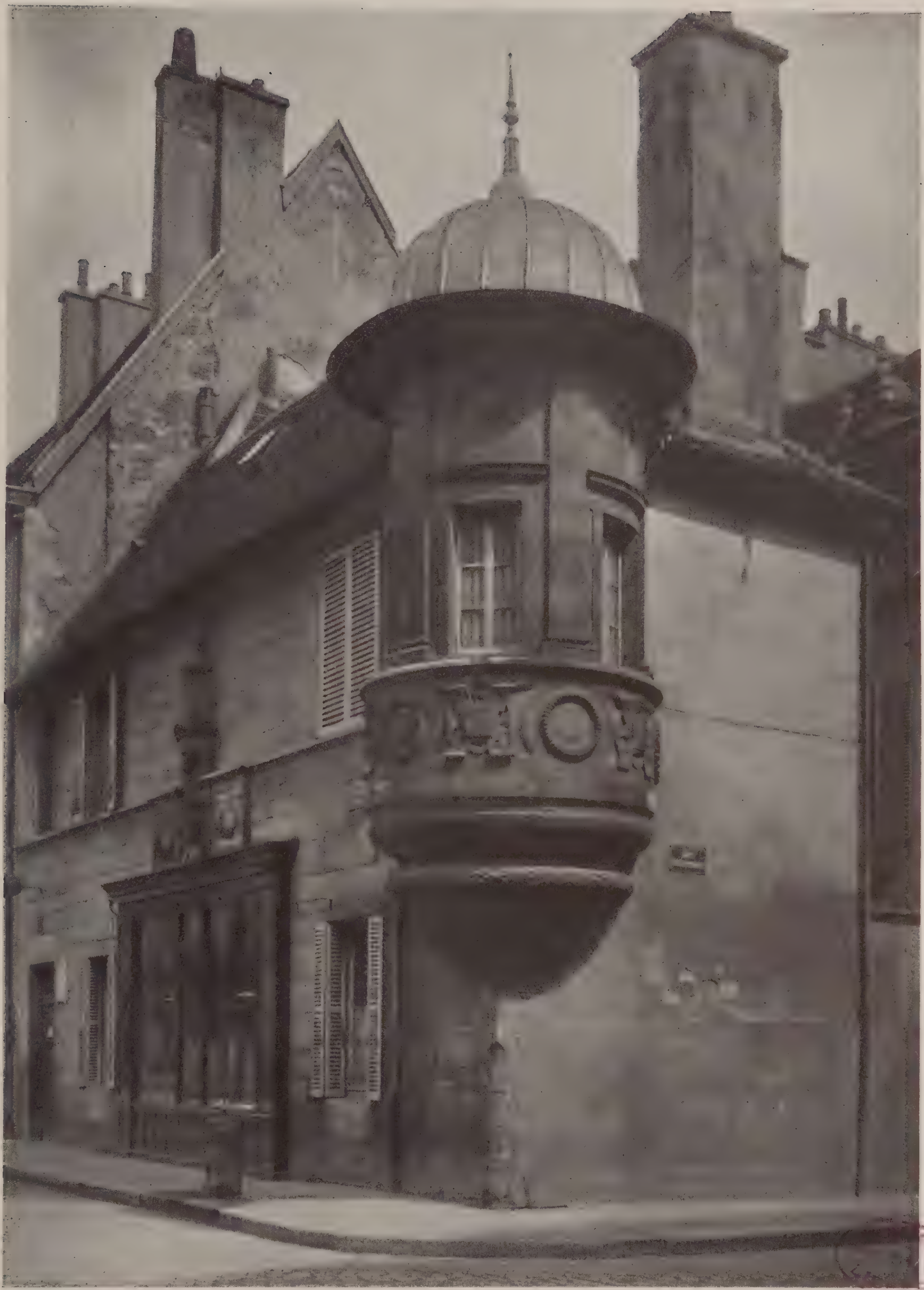

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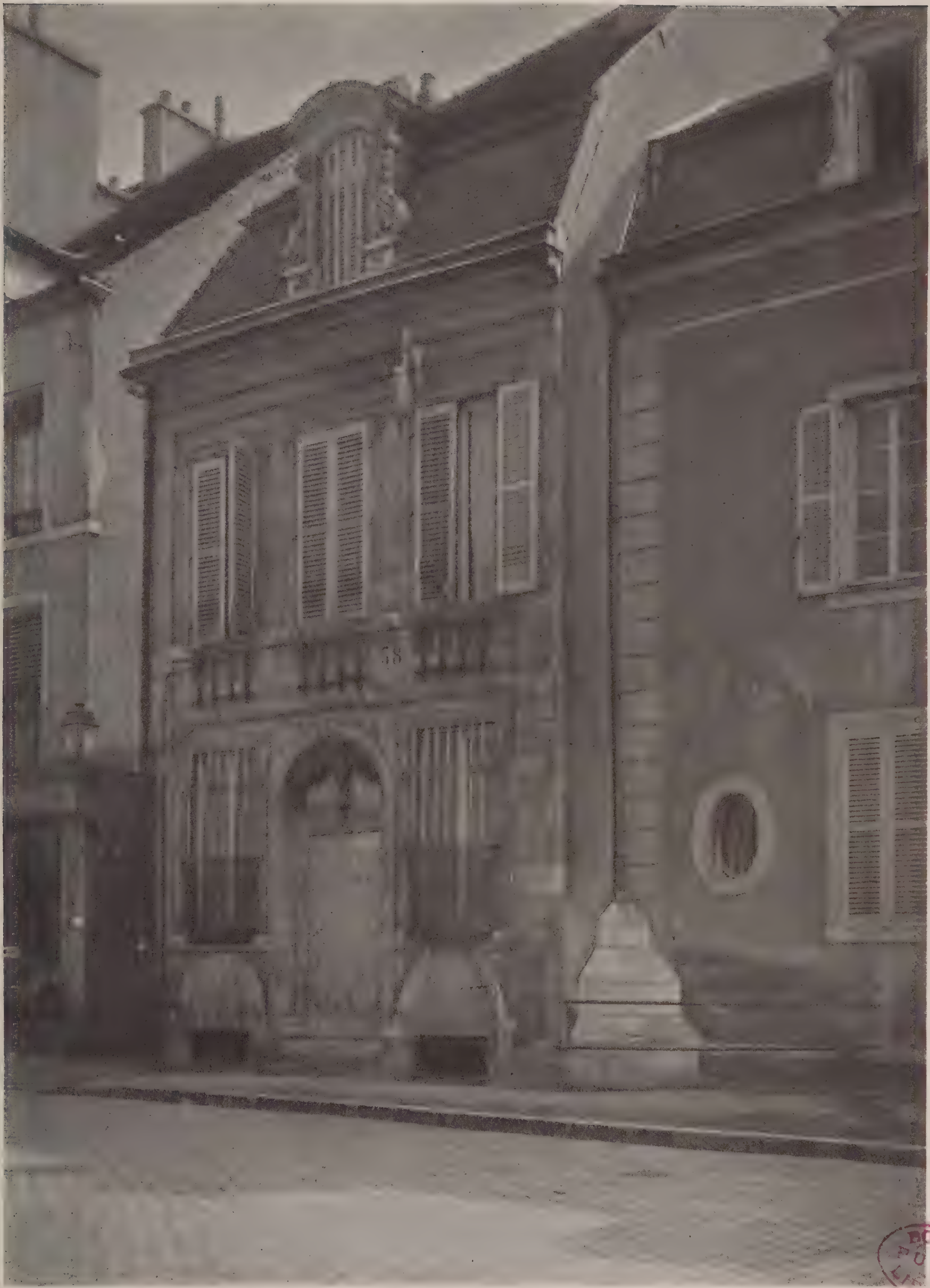
CIRCULAR CORNER BAY, PLACE DES DUCS, DIJON



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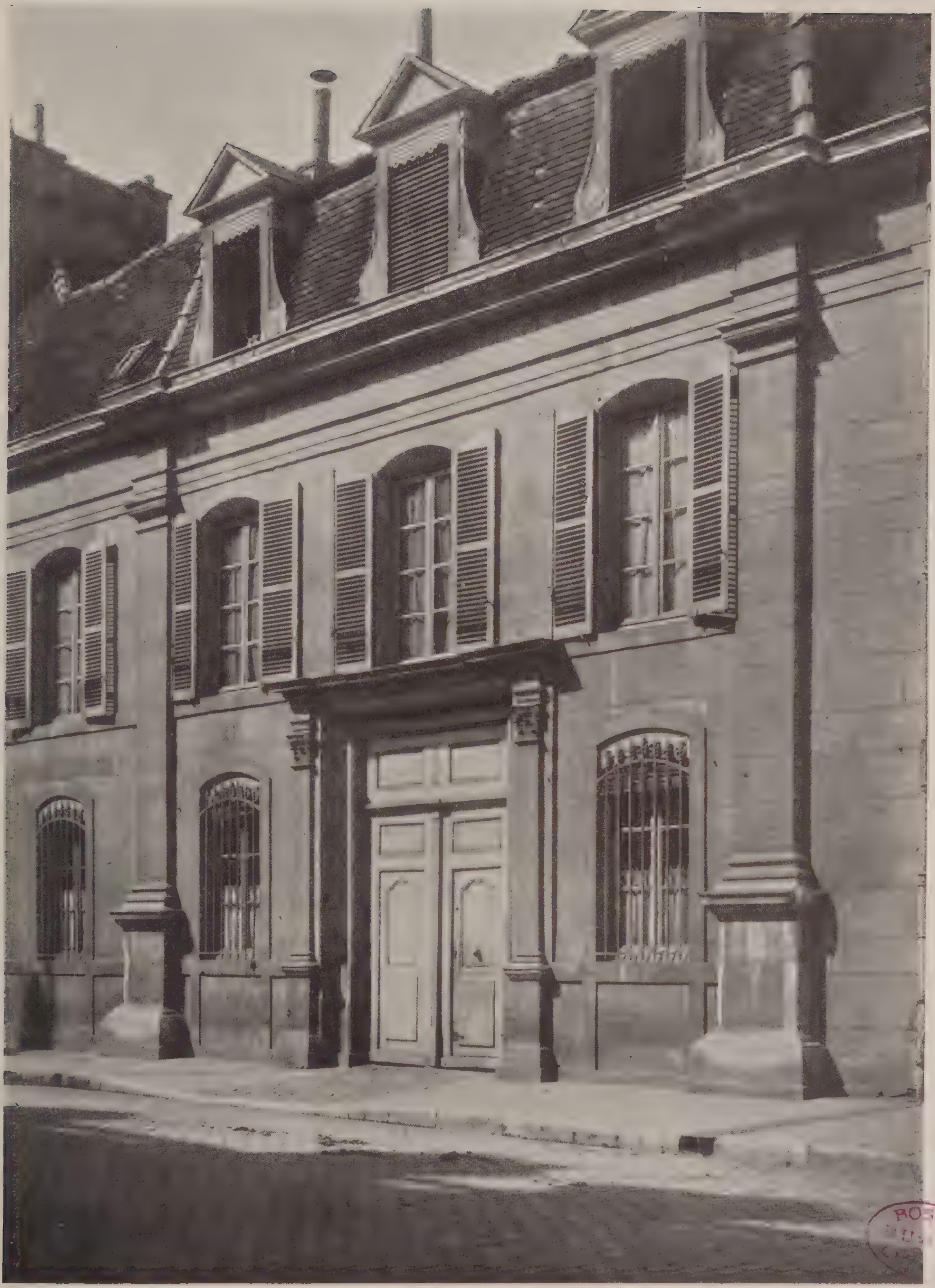

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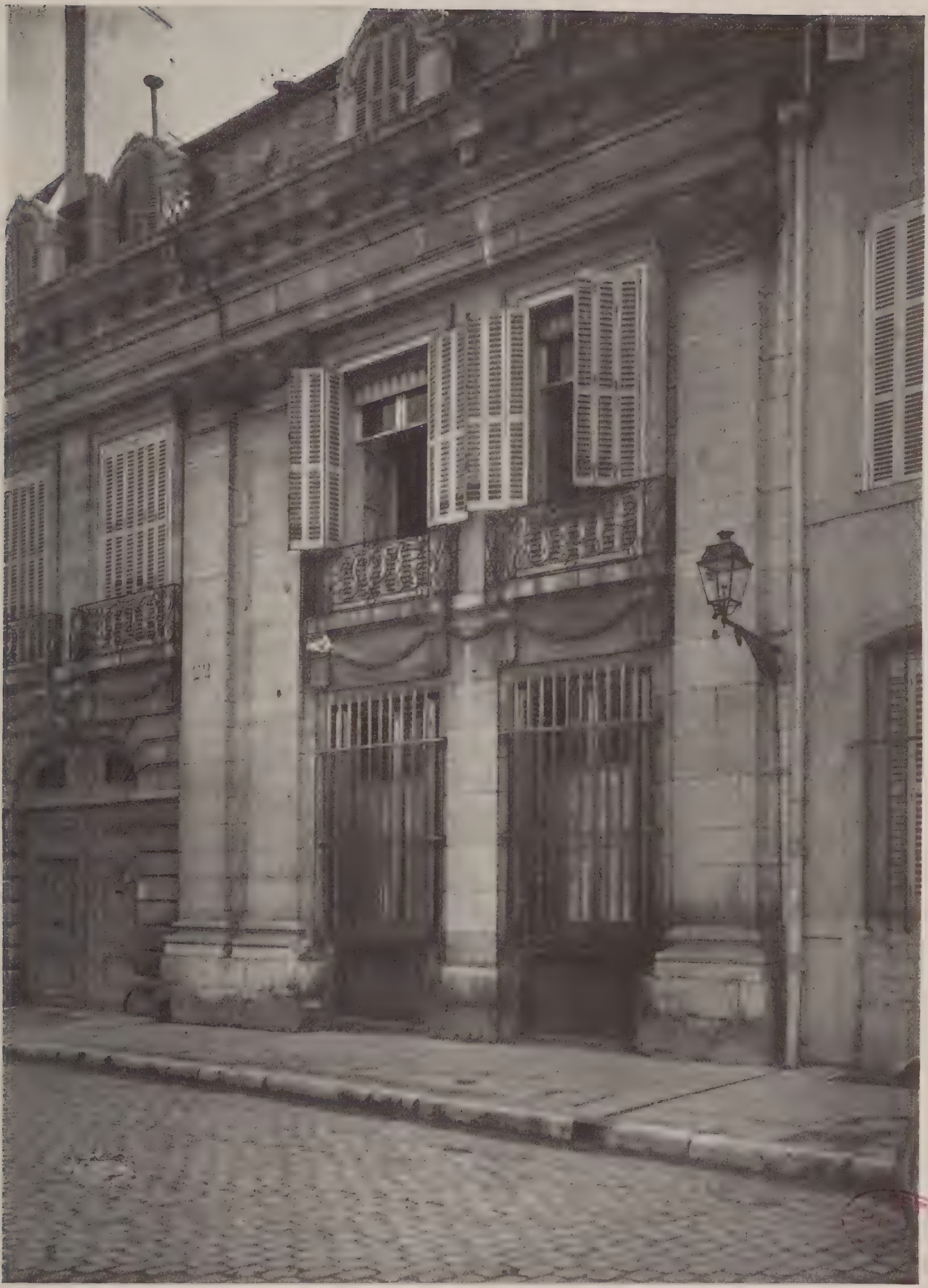

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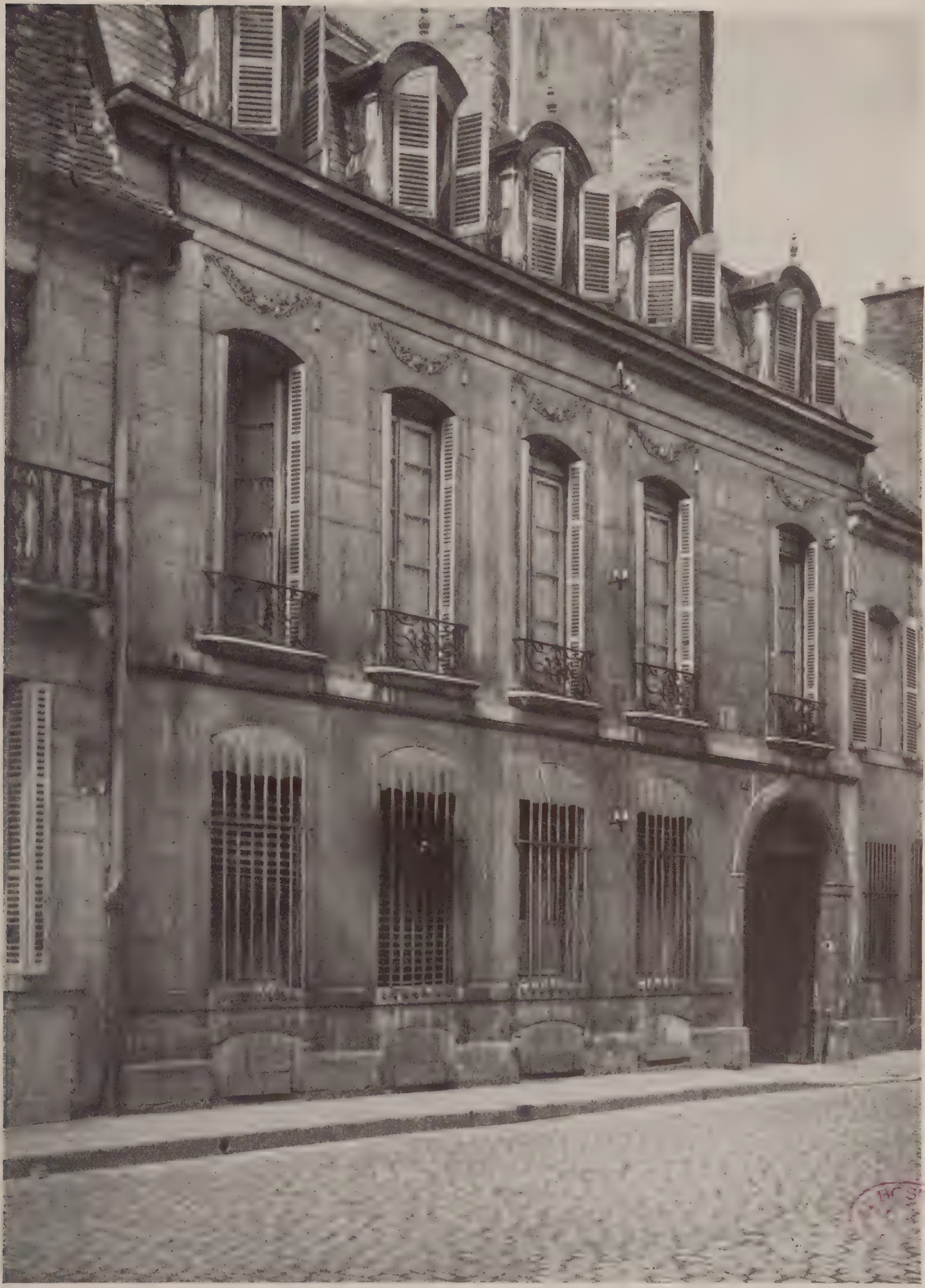

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SMALL BUILDINGS

Small Houses in the Colonial Style

By HENRY B. HUMPHREY

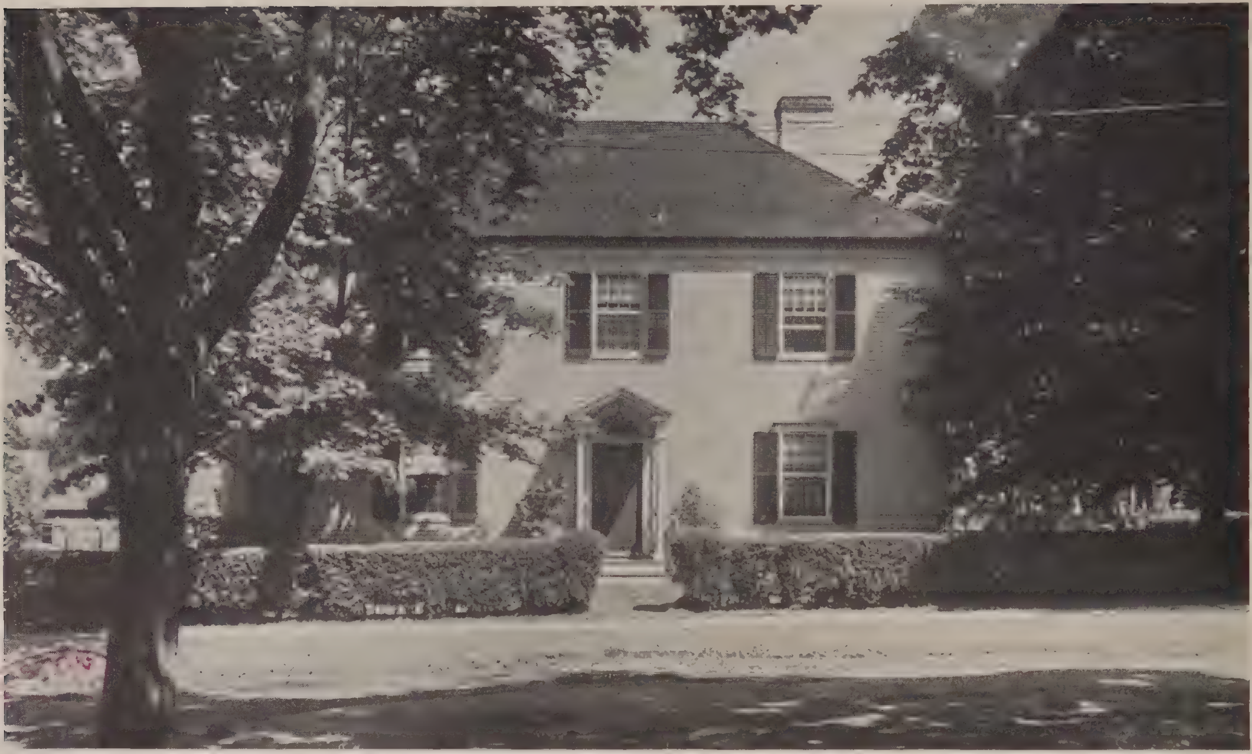
THIS is the age of the small house,—of every kind of dwelling for that matter, from apartments to huge mansions,—but it is especially the age of the small house, because for the first time architects are creating artistic and picturesque designs for small houses. During the greater part of the last century no one seemed to care much about domestic architecture; at least no one produced anything that was pleasing. At the beginning of this century architects took up the problem of building beautiful large houses, mansions befitting the wealth they represented, and now architects, magazines and the public generally are interesting themselves in the problem of making beautiful small houses.

When one surveys the little horrors that have sprung up in the suburbs of our great cities, one regrets deeply that this small house movement did not begin years ago. But the past is past, and the sins that have been committed must be visited upon this and a few succeeding generations. However, since the tide has turned, and since we are building now in great numbers the dwellings that will make or mar the landscapes of the future. it is our duty to consider the problem, as carefully as we may and to produce our very best work in this particular line.

First of all, it seems reasonably apparent that we should build each of the long rows of small houses that are now going up, and that will go up, in some one style. This does not mean, of course, that all the small houses should look alike. It means only that they should all speak the same language, using any dialect or inflection they wish, and that a pink plastered villa should not be allowed to shout imprecations at a quiet, dignified old white Colonial house. The ideal countrysides are certainly those of France and Italy, where there is everywhere a visible homegeneity in the architecture. Even the roof lines blend into one another where the houses are built closely together. We have no such ideal state of things as that here, and it seems doubtful if we ever shall have; but at least we can, and certainly should aspire to it, and secure of it as much as we can.

Just how this is to be accomplished is difficult to say. America is an enormous country, and although

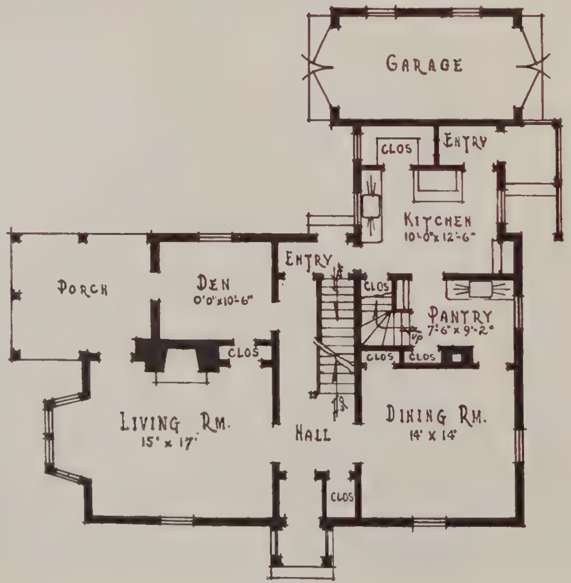
Small Modern Colonial House in Savannah



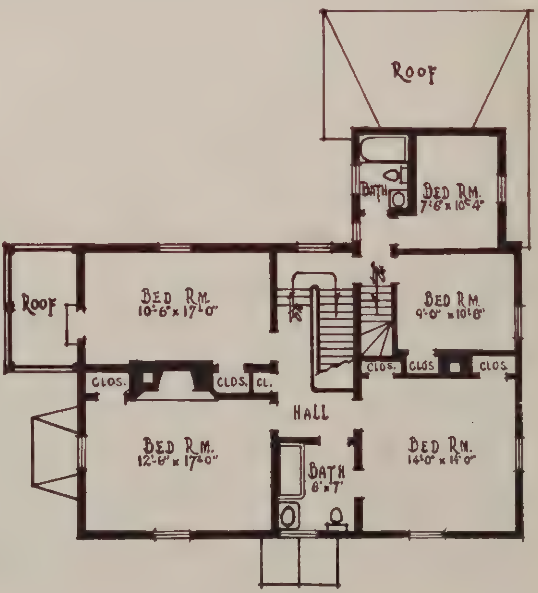
Frederick R. Kneeland House, Flushing, N. Y.
Roger H. Bullard, Architect

Americans are content to be alike in almost everything else, those who can call one or two of the architectural styles by name are anxious that their houses should not look too much like those of their next door neighbors. This makes it difficult for the architect to further the movement for coherence in design. If his client wants "something in the French style," he cannot say, "Go to; you shall have Colonial or nothing." But it would be helpful if he could talk persuasively about the Colonial style, and perhaps take his prospective client to see some beautiful little houses he had designed in that style. The point is that if we are to have any homogeneity at all, architects,—or a goodly number of them, at least,—must definitely favor some one style of design.

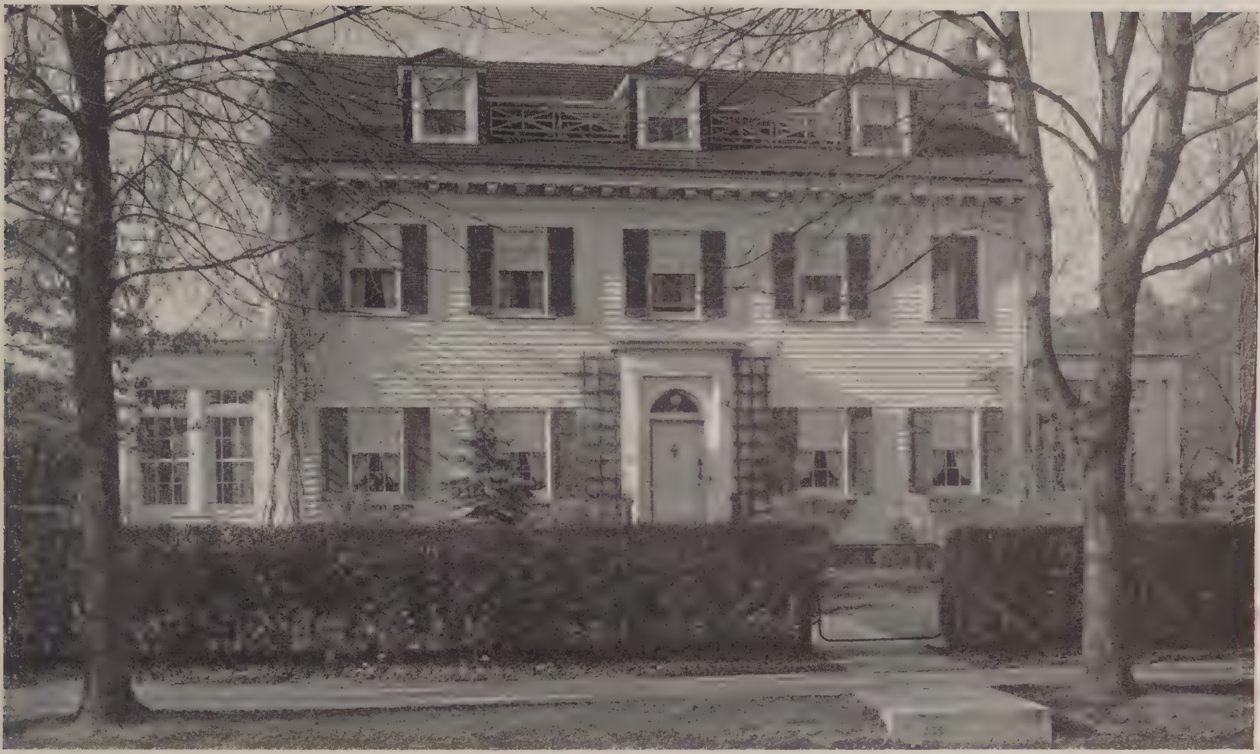
To build successfully in any style, an architect must of course "catch the spirit." If he is going to build a really good English cottage, he must know a lot about early English methods of construction, English builders' usages, and a little about English



First Floor



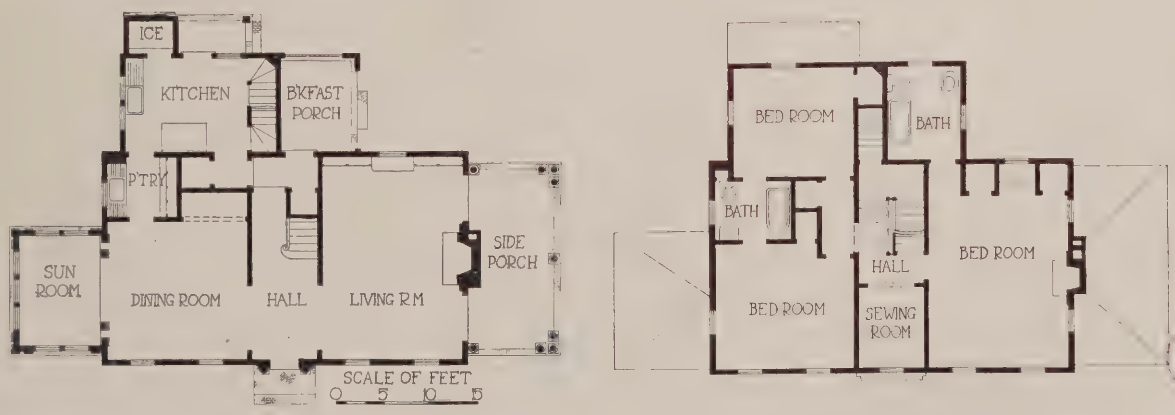
Second Floor



Charles H. Bush House, Cranford, N. J.
Hollingsworth & Bragdon, Architects

history. It is not enough that he know, as many architects now do, how to design a good example of English, French, or Italian architecture. An imitative reproduction of ancient work is not enough,—he must breathe into his work some of the ancient spirit without which the house is a mere shell of stones and timbers, beautifully decorated perhaps, but lacking the reality the ancient homes possessed. Since it is necessary to "catch the spirit," it is suggested that architects seek out the Colonial spirit first of all, and "catch" the other spirits whenever the need demands. A scorn of Colonial architecture and of the spirit which formed it is unworthy of anyone.

The advantages of using the Colonial style are numerous. First of all, it is popular with the public. The only difficulty about this is that the public is conspicuously lacking in architectural taste and appreciation. People go to exhibitions of architecture, but they do not know what is good and what is bad. They "revere" it all. Then when they call in architects to build them houses, they ask them to reproduce something they have seen; it may be an old Colonial house which they are sure is good (because it is old), or it may be a friend's house which they are sure is good because someone told them so. However, the architects militant that I envisage here



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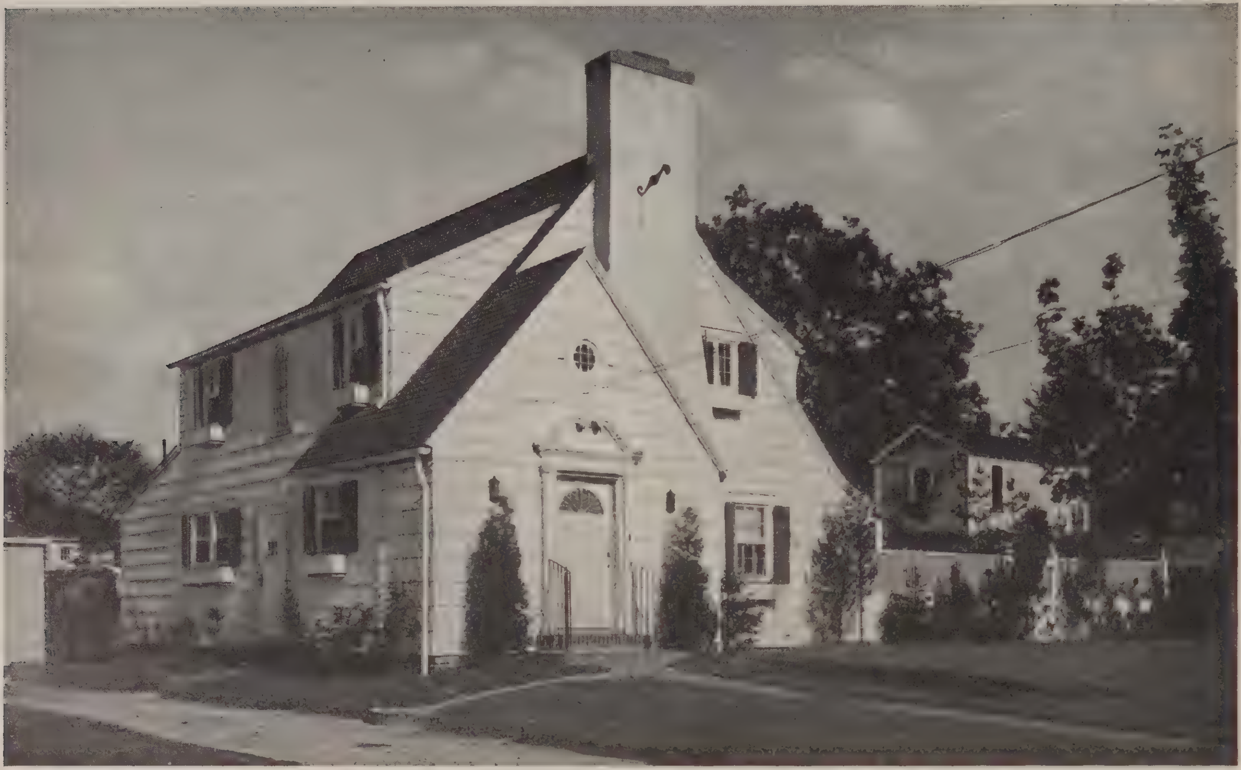
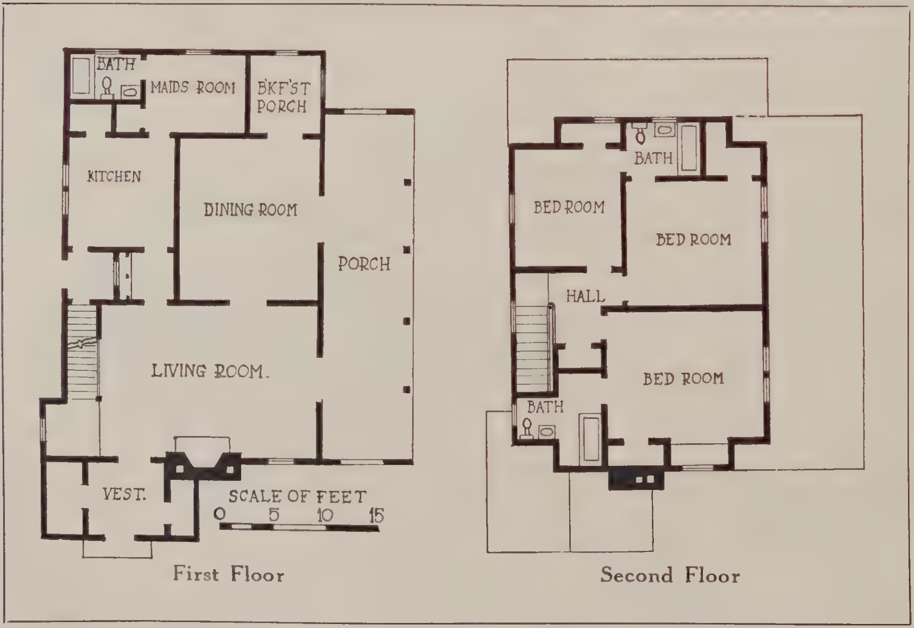


J. E. Sample House, Larchmont, N. Y.
Patterson-King Corporation, Architects

would patiently explain, and persuade refractory clients to do just what they ought to do. The clients wanted Colonial houses,—but bad ones; the architects give them Colonial houses,—but good ones.

A second great advantage of using Colonial architecture for small houses is that it is our one (not counting modern office building architecture) indigenous style. Although the public has no definite architectural allegiance, many of the æsthetes disdain early American work because Colonial architecture does, in a way, bear the "made in America" hallmark; but on patriotic grounds alone, Colonial should be the one style most used on American soil. This is more than just a jingoism. When we think of an Italian villa, we see beside it tall cypresses; before French *manoirs* we visualize rows of slim poplars, and similarly in the American landscape, more particularly that of the North, we should see the style of architecture which the first colonists used there. These colonists took English styles and made them something different. They did not do so to be spiteful or to start an "art nouveau"; they did it because they were forced to do so by the exigencies of life in America. The demands of American life should determine our architecture of today to make it successful.

A third reason for the use of Colonial design is that no architecture, save that of European farmhouses and English cottages, was ever before used so entirely for small houses. Not until Colonial architecture was on the wane did large houses begin to be built in this



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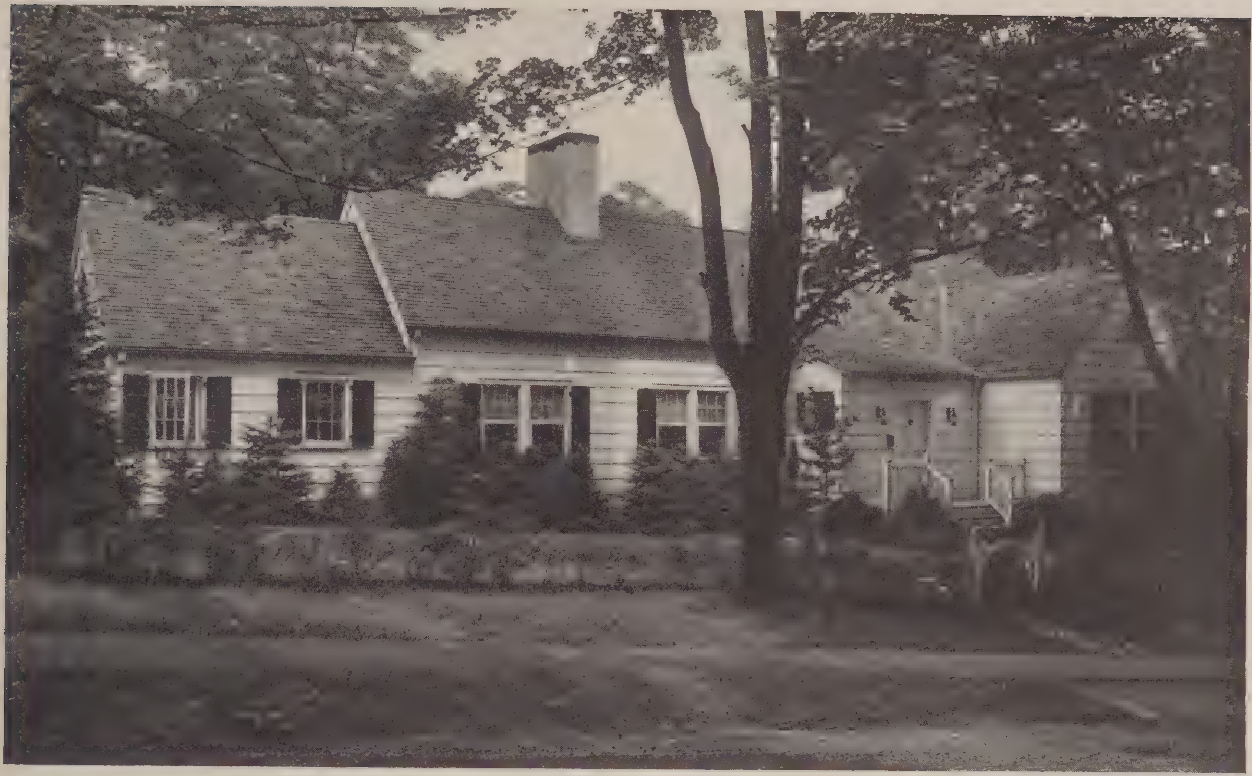


Story-and-a-Half Colonial House at Great Neck, N. Y.
Patterson-King Corporation, Architects

style. Before that time the inhabitants of America, from whatever stock they may have come, lived sedately and with dignity in small, well kept houses. Poor though they were, fighting a hard battle against the forces of nature, their houses reflect their pride of race and their disregard of moneyed ostentation. Such pride and such fine disregard can be built into the small Colonial houses of today. It would be difficult to incorporate these qualities in the design of an European farmhouse or, for that matter, in that of an English cottage. Living in these humble dwellings we picture the peasants of feudal and early Renaissance times. These houses are lowly and "quaint," but scarcely suitable for homes of twentieth century Americans used to better standards.

The hold of Colonial architecture upon the American public persisted after the colonial era itself had closed, although the sudden fondness for things Greek about 1820, at the time of the Greek war for independence and the publication of several books on Greek architecture, cut short its last period. Into what it might have developed by now, had it been left to follow its own course, it is impossible to say. Probably it would have died in the welter of styles produced toward the end of the last century. However, it is certain that the intelligent study of Colonial architecture by a number of architects today is resulting in the complete revivification of this style, and is bringing before the eyes of the world a new beauty, of which Americans may well be proud.

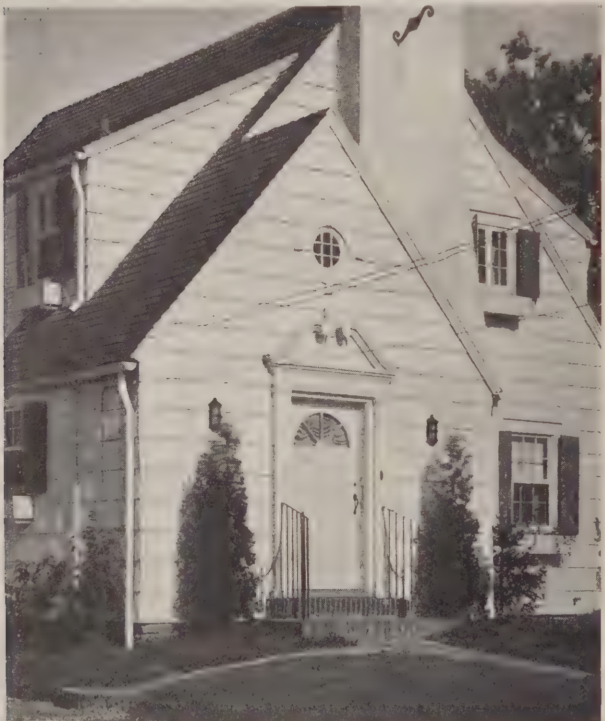
Working in the Colonial style is not, of course, a simple matter. There are as many lessons to be learned in handling this style as in handling any other. Its very simplicity presents a real problem. Few things are harder to achieve than a dignified simplicity which is neither too dignified nor too simple. Three chief pitfalls which lie before the designers of a Colonial house are: First, a cold imitation of ancient work. Second, use of an ultra-sophisticated design, quite out of keeping with the true Colonial spirit. Third, a bleak and austere simplicity. Into the latter class falls the work of those architects who think of a Colonial house as nothing more than a rectangular box, with perhaps a little decoration at the entrance door. There are also to be found in this class a great number of jerry-built houses which are given the name of Colonial only because they are so called by the men who built them. It is these abortions which we should wipe off our landscape. In this same class are those houses which attempt "quaintness," those "love cottages" and little houses, overloaded with details, that mock the true spirit of Colonial design.

One who thinks of Colonial houses as stiff, formal boxes should make a study of the architectural development of those times. In its first period, the era of the small house from 1630 to 1730, the houses were irregular in shape, as unbalanced in fenestration as any lover of English architecture could wish. These houses were not built all at one time, nor were they planned as complete entities. They were put up primarily to shelter families, and they were added to as conditions required. Consider, for instance, the famous old Fairbanks house at Dedham, Mass., built in 1636, which is the oldest dwelling now standing in the northern part of the United States. To the original gable-roofed house were added shortly after its construction two little gambrel-roofed ells. The whole house is now shaded by immense, stately elms, which make it seem as much a part of the landscape as if it had been there since the beginning of time. The truth of the matter is that Colonial architecture which followed in the track of contemporary English architecture, in the days when English architecture was informal and rambling, the days of the Jacobean period, shows a similar looseness of design. In the days when English architecture grew formal and balanced, the Renaissance Anglo-Classic period, the Colonial did likewise. But it is unjust to condemn all Colonial architecture as "stiff," for such could not have been the case in the buildings of the early settlers.

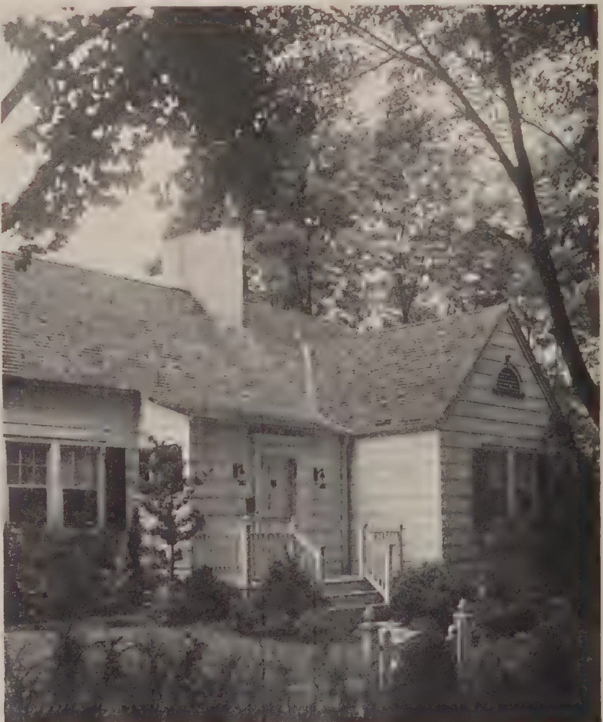
In the early period of Colonial design, however, we find little which may be used by the architect of today, save the plans of the buildings. We must study the later periods to get the details with which to ornament our modern houses. The early dwellings, with their numerous additions in the form of the ell, lean-to, and so forth, give charming, informal plans, with interior arrangements which can be made to fit the needs of any family. But these early houses were practically bereft of ornament. It was not a period in which house builders could afford to give much attention to the appearance of their facades and ornamental details, and they did not.

One of the dangers to be avoided in Colonial design, and a fault which appears in much of our modern work, is an over-use of such features as arches, pedimented doorways and Palladian windows. It is ridiculous to stick these on anywhere, even to suit the wishes of a client. A Palladian window needs a good wall space to set it off, and a pedimented doorway is not suited to every house designed in the Colonial style. It must be remembered, furthermore, that those ornamented doorways were a comparatively late development, and that not until the middle of the eighteenth century did doorways begin to be ornamented with columns, which at that time were seldom free-standing. In the first quarter of the century there appeared entrance decoration in the form of friezes supported by console brackets or pilasters. The pediment also passed through the same development, beginning as triangular and then going on through the "segmental circle" and "broken" stages. The development of the window was similar to that of the door. As the years passed the size of the panes increased, and their number decreased. Prior to the Revolution semi-circular arches were only used for windows on stair landings, and before the middle of the century Palladian windows were only very rarely used.

Certainly the Colonial style can meet all needs, as few architectural styles can. It can be developed in any material and be built for any climate; it can be formal or informal, large or small, as the owner and architect wish. And furthermore, and finally, it has a charm that accords perfectly with our American life today. With a garden, a picket fence, and a coat of white, cream or yellow paint, the Colonial house is as intrinsically beautiful and bright as any Italian villa, and at the same time it is indigenous to our soil and climate, besides meeting American needs.



Detail, Sample House, Larchmont, N. Y.
Patterson-King Corporation, Architects



Detail of a House at Great Neck, N. Y.
Patterson-King Corporation, Architects

Colonial Details

By JOSEPH F. HIGGINS

TO the fact that many of the first and foremost colonial architects, builders and workmen served their apprenticeships in the shops of the shipbuilders as designers, shipwrights, and carpenters, we owe much of the delicacy and refinement of detail so characteristic of Colonial work. As may be judged from the ship models of the seventeenth and eighteenth centuries, so much sought after today, great elaborateness of detail marked the design of many of the larger ships. Ornamental figureheads, carved from wood, adorned the prows, and tiers of richly decorated mullioned windows pierced the sterns of the "ships of the line" and the early square-rigged clippers. The work of providing decoration for the ships of that day produced men of great artistic skill, who possessed more than ordinary intelligence and ability.

As the merchants in the port towns and cities through foreign trade increased their wealth and raised their standard of living, they built for themselves larger and more elaborate houses. Since architects and designers were scarce in America in those days, these merchants were forced to turn to the shipbuildings to construct their buildings. Among the foremost of these early house builders was Samuel McIntyre of Salem. He, like the other architect-builders of the time, plunged eagerly and enthusiastically into the new task. Books on architecture, which were being published by several architects in England, were imported by these early colonial builders for their inspiration and instruction. In England the Georgian period was at its height; Sir Christopher Wren was rebuilding London after the Great Fire. Through the influence of the work of the Italian architect Palladio, which was at that time being published in books, the Classic orders again came into use and popularity in England. Through other books published at this time by such leaders as Robert Morris, Inigo Jones, William Halfpenny and others, our Colonial style naturally took on a close resemblance to its contemporary, the Georgian style in England. As an understanding of architecture in those days was a part of the scholastic training of every educated man, many of the colonists who had received their educations abroad aided through their knowledge of the basic principles of architecture in developing the Colonial style. This was particularly true of the South, where wealth promoted travel and education.

Due to the simplicity of Colonial work, there are not as many decorative details which characterize it as in the cases of certain other styles of architecture. The chief characteristic of the detail of this period can be found in the decorative treatment of door and window openings, dormer windows, fireplaces, built-in cupboards, wall paneling and stairways. A greater richness of detail is usually found in the interior rather than the exterior details, although in some of the fine houses built during the latter years of the eighteenth century great elaboration was found in both. By following the precedent of the Georgian period, various adaptations of the orders were used to frame door openings. Combined with the use of the orders, in which free-standing and engaged columns as well as pilasters were employed, use of pediments, plain or broken, became the custom in the treatment of door heads. Thin, vertical side lights and oblong and often semi-circular leaded glass lights were used to enrich the sides and tops of the door epenings. These lights were often elaborate and aided in giving architectural character.

The decoration of window frames also grew more elaborate as the style was developed. Architraves of Classic mouldings supported flat entablatures and, later, pediments. The 24 and 32 panes of glass, used in the earlier windows, were replaced later by 12 and 18. At first the wood muntins were quite heavy, but later they became as thin and delicate as strength of construction would permit. In door lights the early wood muntins later gave way to lead, which permitted the use of smaller and differently shaped panes of glass. Double-hung windows were universally used. To increase the sizes of the windows on the first floor the lower sash would often have one more row of panes of glass than the upper. Outside wood shutters were commonly used on the early Colonial houses. These shutters usually showed two panels of equal size. Dutch influence led to the use of two or three panels, the upper of which was quite small and often contained a pierced design. These designs were commonly in the shape of a crescent, placed either vertically or horizontally, although a variety of designs are found in different parts of the country. It was not until the middle of the eighteenth century that shutters containing the fixed louvers, which we know as "blinds," came in.

The windows were almost always placed flush with the outside walls of the houses, thus making possible deep window recesses on the inside, as the construction of these early houses was usually a combination of brick shell, covered with sheathing and clapboards or shingles. Even houses constructed entirely of wood were built so solidly and of such heavy timbers that the walls were often a foot thick. These deep window reveals permitted the use of seats and flower shelves on the inside. Also shutters which folded back into the window reveals were very common during the first half of the eighteenth century. In many of these houses solid paneled shutters made to slide back into the thickness of the walls were used to cover the insides of the windows. This type of shutter formed an excellent protection against attacks from Indians or robbers, which were not uncommon in rural districts.

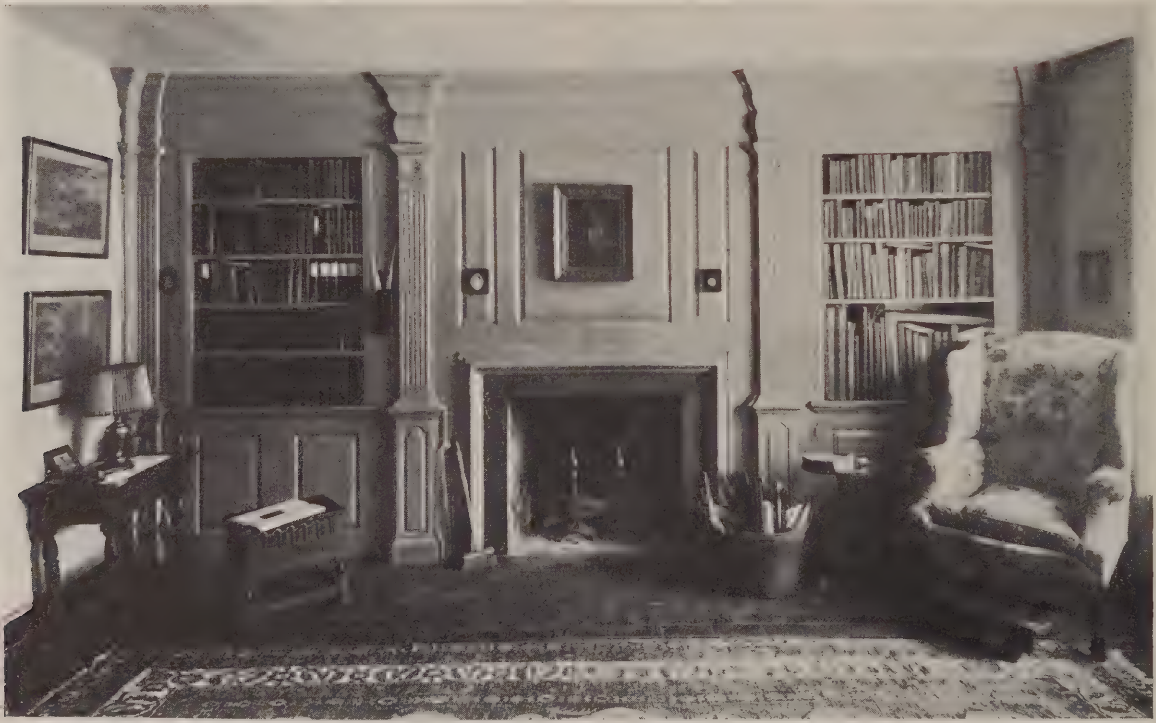
Great variety and charm are found in the details of the mouldings, which varied in different sections of the country. In New England they were refined, delicate and rather light in weight, while in the South they were bolder, more vigorous and heavier in design and weight. Great care and thought were spent upon the profiles of mouldings of all kinds.

In early Colonial houses the plaster walls were usually left bare and painted, but as the colonists grew richer and more prosperous and visited Europe more frequently, French and English wallpapers were used above low wainscots, which came to the levels of the window sills. The wainscot cap was composed of simple mouldings with slight projections. In the more pretentious houses, particularly prior to 1750, wall paneling extending from floor to ceiling was found. Such paneling was particularly used for the fireplace side of the room, the other three walls being left with the plaster exposed. The new American wing of the Metropolitan Museum shows a number of splendid examples of these early paneled rooms. In a later issue of The Forum it is intended to devote several pages to the illustration and consideration of these delightful paneled rorms.

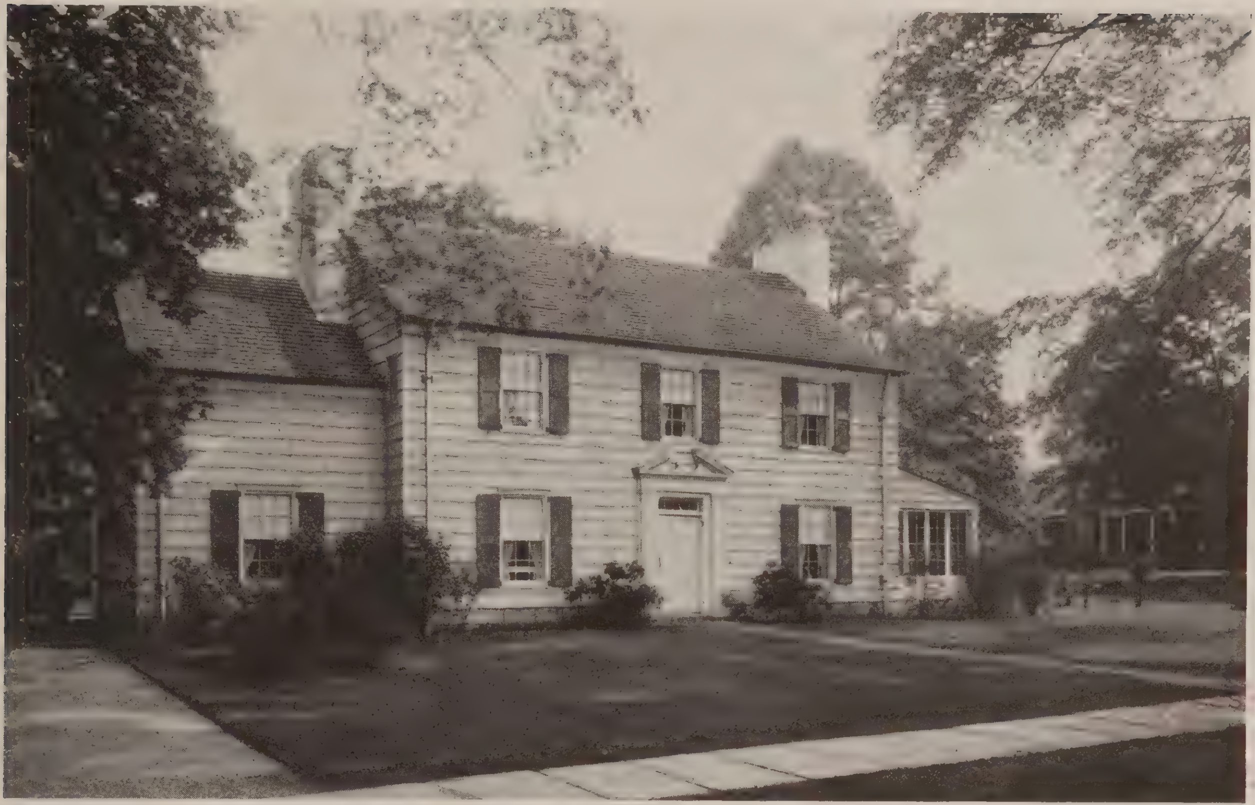
The fireplace openings in all houses, large or small, were given particular attention. In the early houses the wood mantels, surrounding the narrow brick facings of the fireplaces, were extremely simple in design, and often showed no mantel shelves, in which cases heavy bolection mouldings formed frames around the fireplace openings. This treatment was very generally used where the wall of the fireplace end of the room was paneled from floor to ceiling. Later on the mantelpiece became ornate, with the introduction of fluted pilasters or columns supporting an elaborate entablature, decorated with carved ornamentation and mouldings. The elaborateness of these carved decorations increased gradually up to the end of the eighteenth century. A detail for fireplaces which became quite popular were the "ears" of the architrave, also known as *croisettes*. This detail of decoration was used also in the architraves of doorways and windows.

Another characteristic detail of Colonial houses is the cupboard, which was usually built in the corner of the principal living room of the house; often there were two cupboards in opposite corners, forming a balanced design. These were composed of two parts; the upper parts were sometimes open and sometimes had doors with glass panes, under square or round heads. The interiors of the upper parts of these cupboards were usually semi-circular in plan and contained shelves with scalloped edges. Often a niche effect was used, terminating in a fluted shell-like design at the top. This treatment was particularly popular in the later colonial period, when doors were seldom used for these corner cupboards.

In the stairways of this period the love for fine decorative detail is evidenced in the carved newel posts and the variety of turned balusters and riser ends which often were beautifully carved. The number of balusters to each tread was usually three, but in the earlier and more rugged work only two balusters to a tread were used. Balusters of three different designs were frequently grouped on each tread. Besides the columnar type and the richly carved post, the twisted spirals, often quite elaborately designed, are found in late Colonial work.

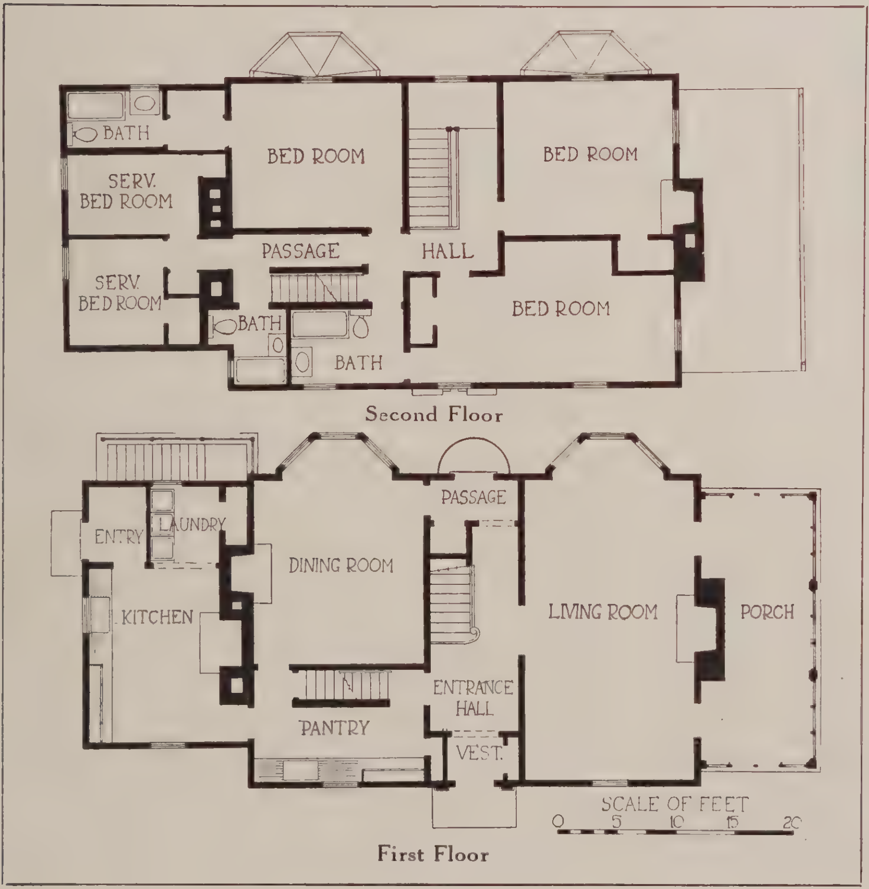


Library in a New York House
Leigh French, Jr., Architect



SMALL COLONIAL HOUSE AT FLUSHING, N. Y.

TREANOR & FATIO, ARCHITECTS



THIS simple but pleasing building, with its whitewashed shingled walls and large end chimneys, is suggestive of many early Colonial farmhouses found throughout New England. The Colonial trim of the entrance door as well as the five well proportioned windows, with their solid green-painted shutters, makes a simple but pleasing composition for the entrance facade. The severity of the front elevation is pleasantly relieved by sharply projecting bay windows and small arched center door on the garden facade of the house. The simple, straightforward handling of these bay windows is characteristic of the few examples of this motif found in Colonial work. The plan is typical of small Colonial houses of today. A center hall, which is 8 feet wide, separates a living room, occupying the entire end of the house, from the

(Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 33

Small Colonial House at Flushing, N. Y.; Treanor & Fatio, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame, concrete foundation.

EXTERIOR WALLS:
Sheathing and shingles.

ROOF:
Hand-rived cypress shingles.

WINDOWS:
White pine, double-hung, small panes.

FLOORS:
Oak throughout master portion; comb-grain yellow pine elsewhere.

HEATING:
Hot water.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting and range.

INTERIOR MILL WORK:
White pine trim, base and wainscot in first and second floor stair halls.

INTERIOR WALLS:
Hard finished plaster.

INTERIOR DECORATIVE TREATMENT:
Wallpaper throughout, except in bathrooms and service portion of first floor, which have enameled paint.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
43,674.

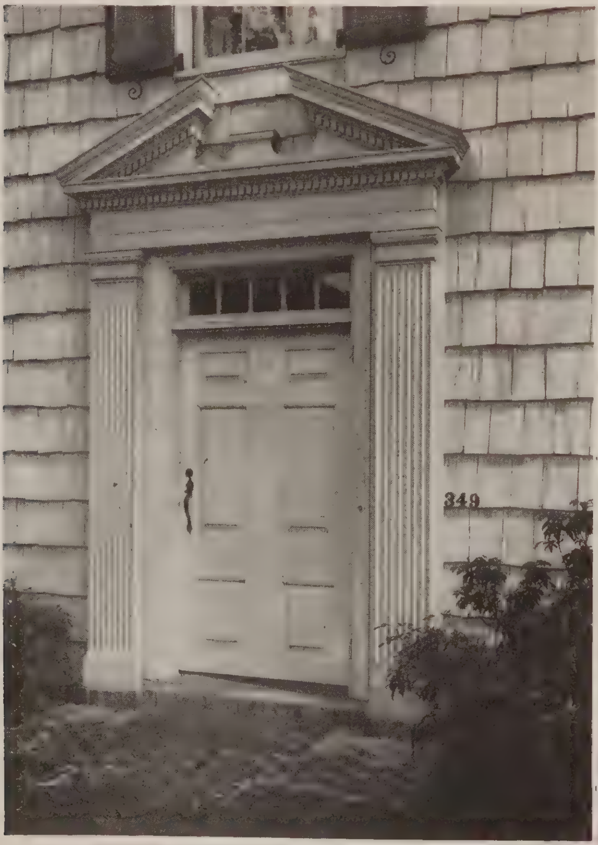
COMPLETED COST PER CUBIC FOOT:
61 cents.

DATE OF COMPLETION:
December, 1923.

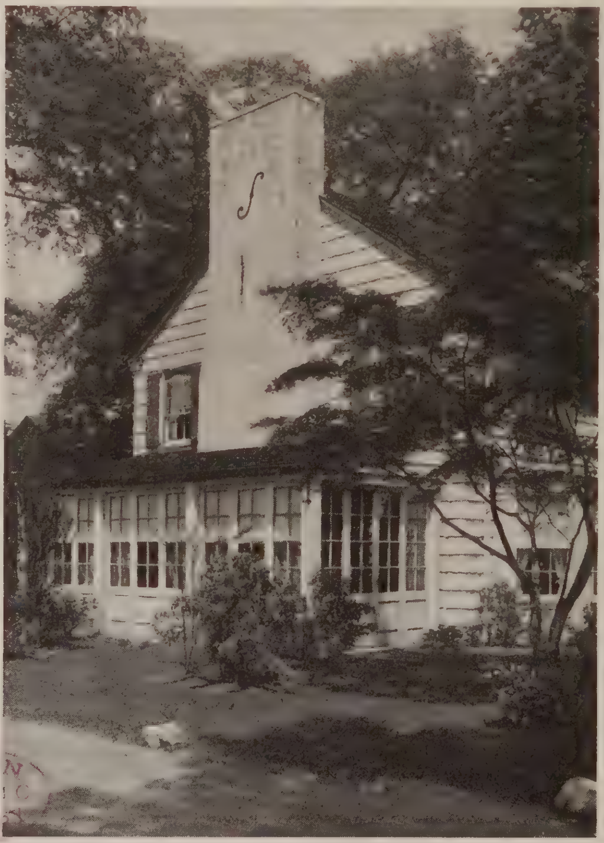
(*Perspective and Plans on Preceding Page*)

dining room and pantry on the kitchen side. The story-and-a-half kitchen wing is balanced by a glassed-in sun porch at the opposite end of the house. The second floor shows a convenient arrangement of three master bedrooms and two baths, with two servants' rooms and bath opening off the servants' stair hall. This is an excellent example of a small, modern house designed in the popular Colonial style.

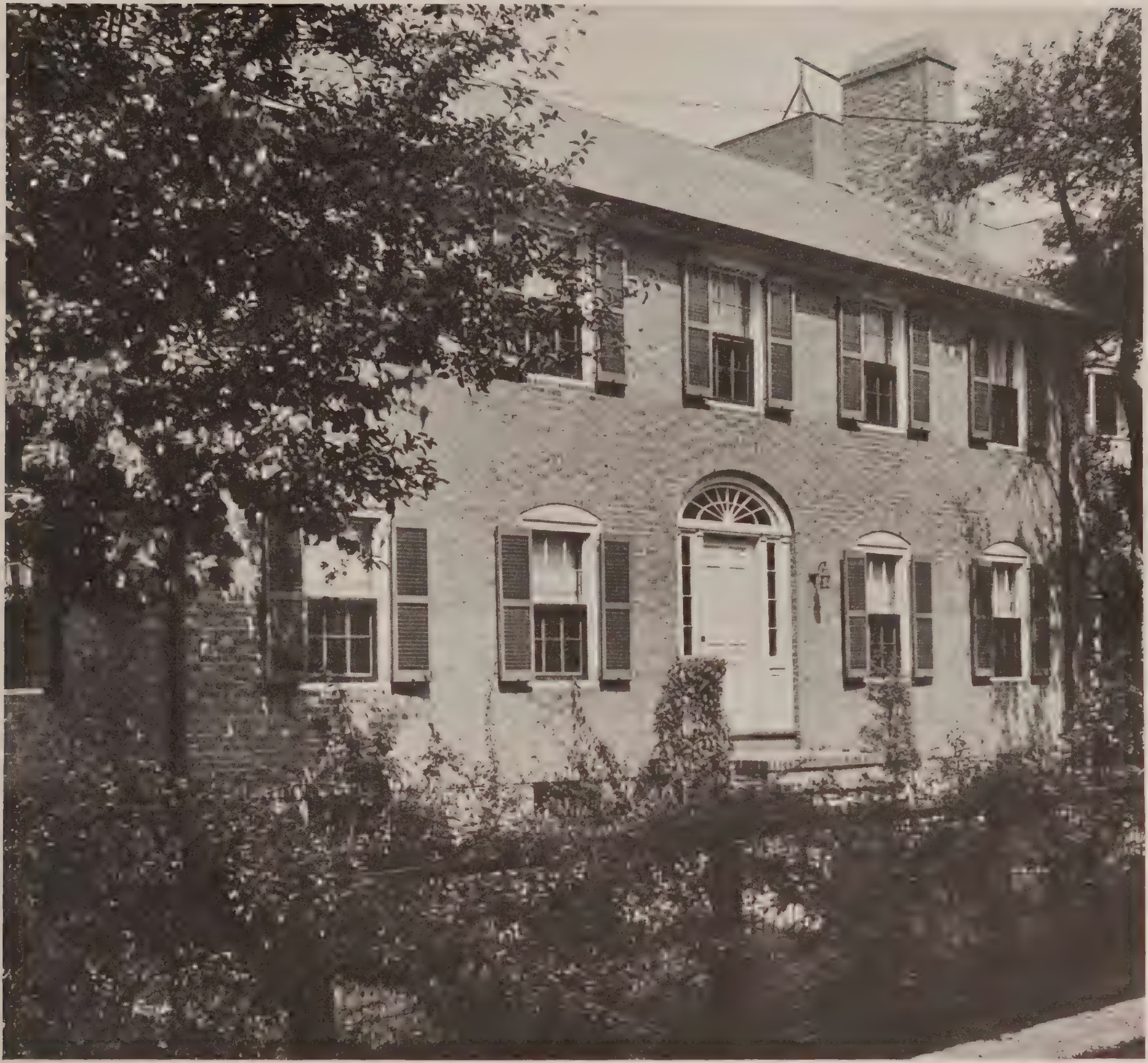
This house owes a considerable part of its interest to the beauty of its setting. Flushing is a place in which there lingers much of the atmosphere of the period during which its part of Long Island was settled, and the whitewashed shingle walls of the house are set forth by smooth green lawns and by trees of many years' growth. The little estate fits well into its setting in a pleasant old town.



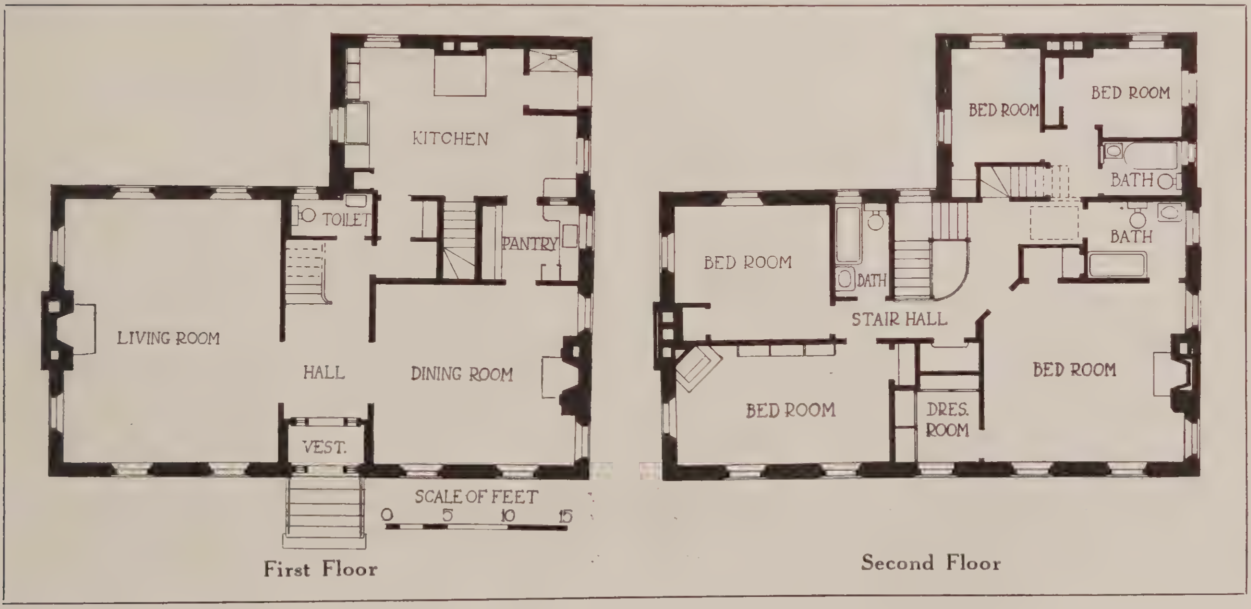
Front Entrance



Sun Porch



BRICK COLONIAL HOUSE AT NEW HAVEN
CHARLES G. LORING, ARCHITECT



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 34

Brick Colonial House at New Haven; Charles G. Loring, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR WALLS:
Brick veneer.

ROOF:
Slate.

WINDOWS:
Wood frames and sash double-hung; small panes.

FLOORS:
Maple throughout.

HEATING:
Hot air.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine.

INTERIOR WALLS:
Hard finished plaster.

INTERIOR DECORATIVE TREATMENT:
Paper, and painted trim in master portion; painted walls and trim in service portion.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
39,700.

APPROXIMATE COST PER CUBIC FOOT:
49 cents.

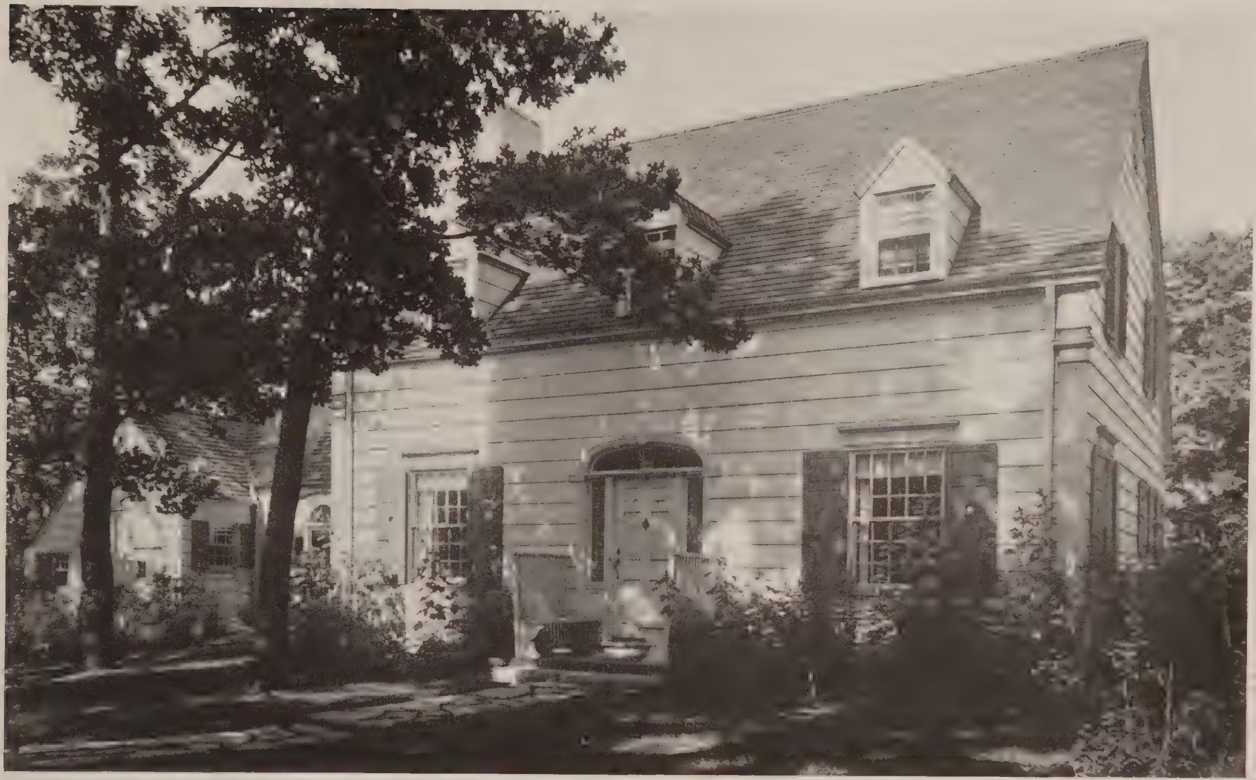
YEAR OF COMPLETION:
1922.

(*Perspective and Plans on Preceding Page*)

SIMPLE and straightforward in design, this successfully studied adaptation of the late Colonial style as found in the cities of New England has every appearance of age and old fashioned hospitality. The entrance door and first floor windows have the segmental brick arches typical of the period. Large chimneys and quarter-round windows add to the interest and dignity of the gable ends of the house. The plan is in keeping with the plain exterior, which shows no covered porch, sun parlor or open flagstone terrace, so popular in so-called Colonial houses of today. It is as simple as the exterior. The center hall, with lavatory at the rear end of the main stairs, divides the living room from the dining room, these rooms occupying respective ends of the house. Back of the dining room are the pantry, servants' stairway, good-sized kitchen and rear entrance, the kitchen being in an ell.

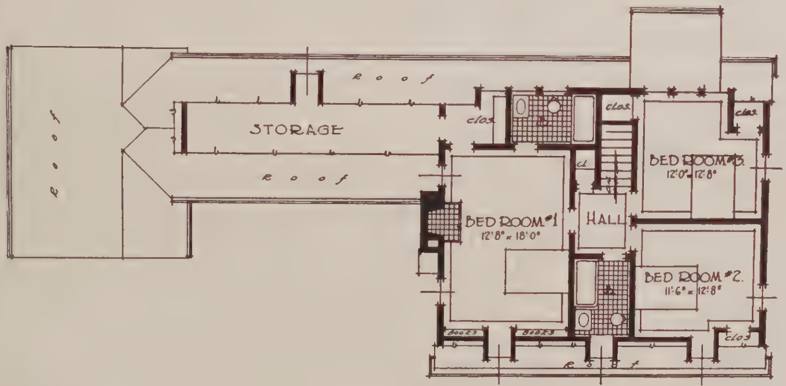
Living Room Mantel

Main Stairway

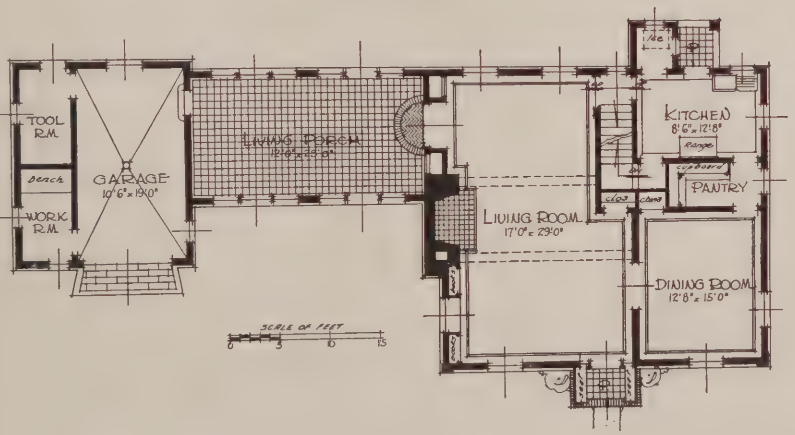


COLONIAL COTTAGE AT GLENCOE, ILL.

R. C. HUNTER & BROTHER, ARCHITECTS



Second Floor



First Floor

THIS small Colonial house shows unusual thought and care taken in its proportions, details and plan. A story and a half of clapboard-covered walls, with two large, small-paned windows and a pleasing segmental arched entrance door, flanked by old fashioned entrance seats, are the main elements of the design of the front elevation. The three openings in the first story are balanced by three small, well proportioned and simply designed dormers which are located low on the roof, but which fortunately do not break the line of the eaves. Paneled pilasters mark the corners of the front of the house. The plan shows an oblong living porch or loggia connecting the main house with the garage, which pleasantly terminates the design with the long, low slope of its outer roof. The segmental arched doorway of the garage repeats the two archways of

(Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 35

Colonial Cottage at Glencoe, Ill.; R. C. Hunter & Brother, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR WALLS:
White pine siding and finish.

WINDOWS:
White pine, double-hung.

ROOF:
Cypress shingles, stained.

FLOORS:
Oak, except for loggia, where brick is used.

HEATING:
Vapor steam; temperature control.

PLUMBING:
Vitreous china fixtures.

ELECTRICAL EQUIPMENT:
Lighting, and cooking range.

INTERIOR MILL WORK:
Birch, and enamel paint.

INTERIOR WALLS:
Hard plaster, covered with wallpaper.

INTERIOR DECORATIVE TREATMENT:
Floors, stained dark; woodwork, painted light; ceilings, white calcimine.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
33,800.

COST PER CUBIC FOOT:
61 cents.

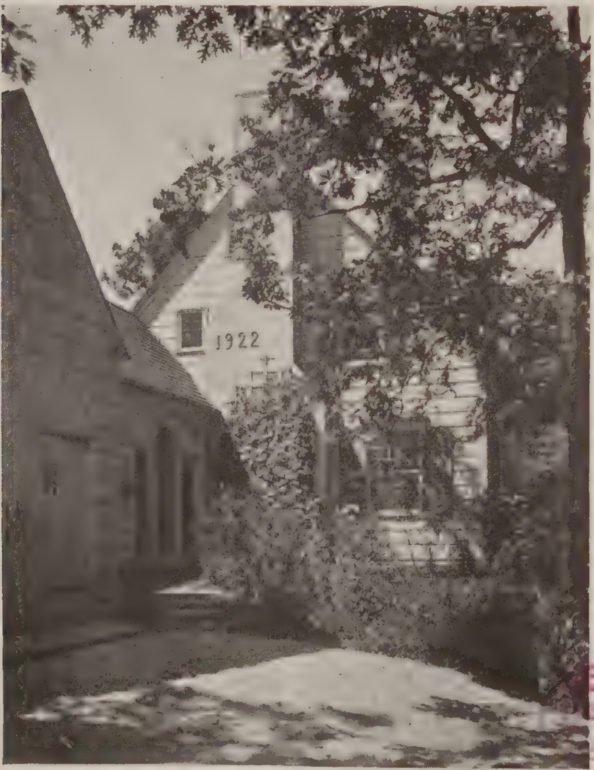
DATE OF COMPLETION:
May, 1923.

(*Perspective and Plans on Preceding Page*)

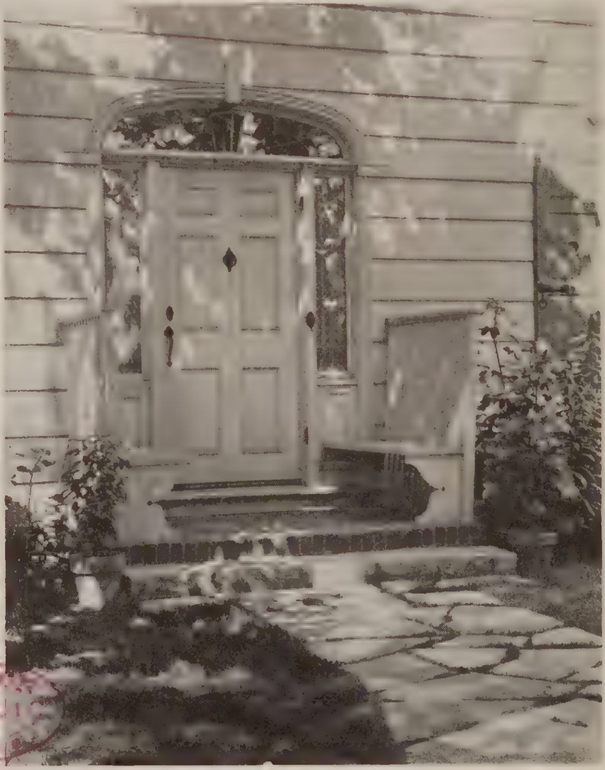
the loggia. Painted white, with green shutters, the house and garage are extremely attractive in the impression which they give to the passer-by.

The large living room occupies more than half of the first floor, with the front door opening directly into it. At the right is a small dining room with pantry, kitchen and servants' porch at the rear. The single staircase of the house is located between the living room and kitchen, making it accessible from both. The second floor shows three bedrooms and two baths, with storage space under the roof of the loggia which connects the house with the garage. This loggia is 12 by 23 feet in size, with open archways on either side, suggestive of the Palladian motif. One large chimney is logically located at the end of the house nearest the garage, thus emphasizing the axis or center line of the entire design, with its long frontage.

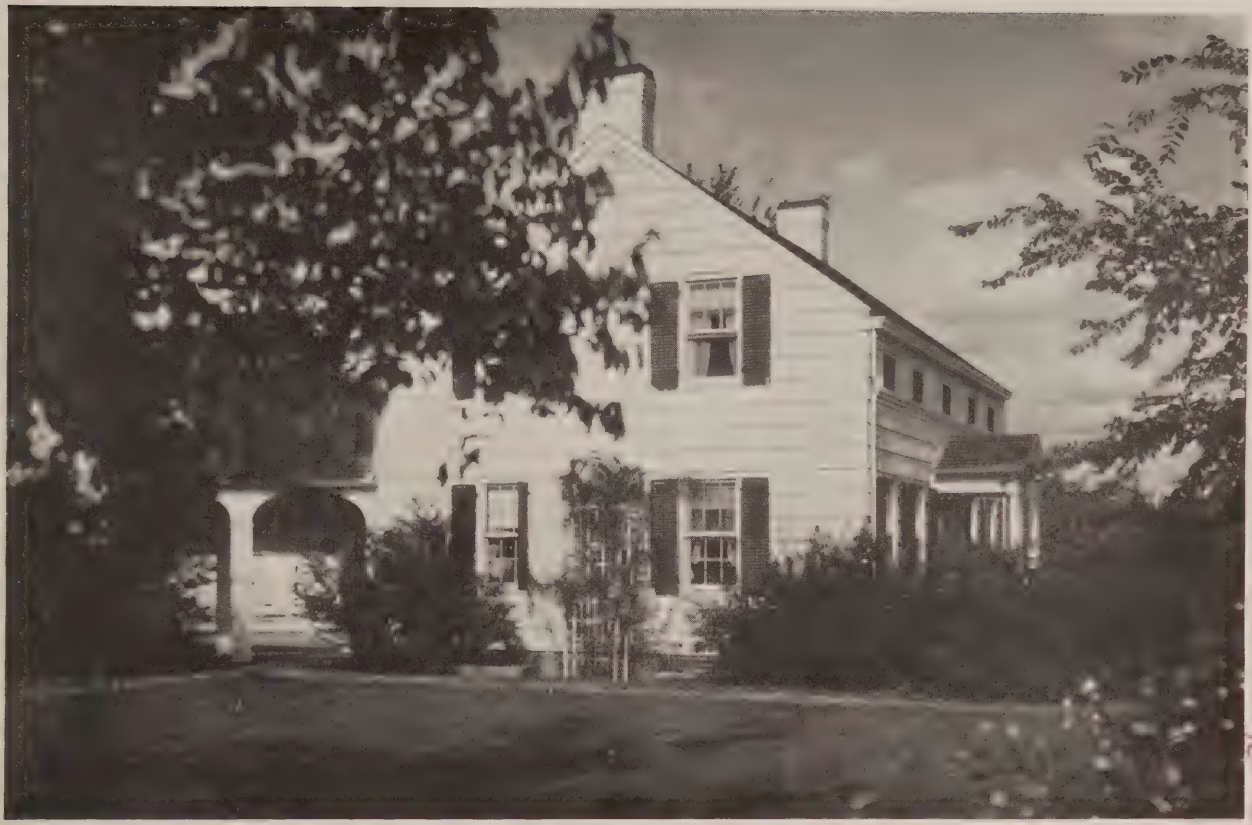
There is a subtle charm about the proportions and details of this design, combining house and garage as it does in one group, which a glance at the illustrations will readily make evident. The house possesses a notable architectural character which combines old fashioned, homelike simplicity with dignity.



Garage and Living Porch

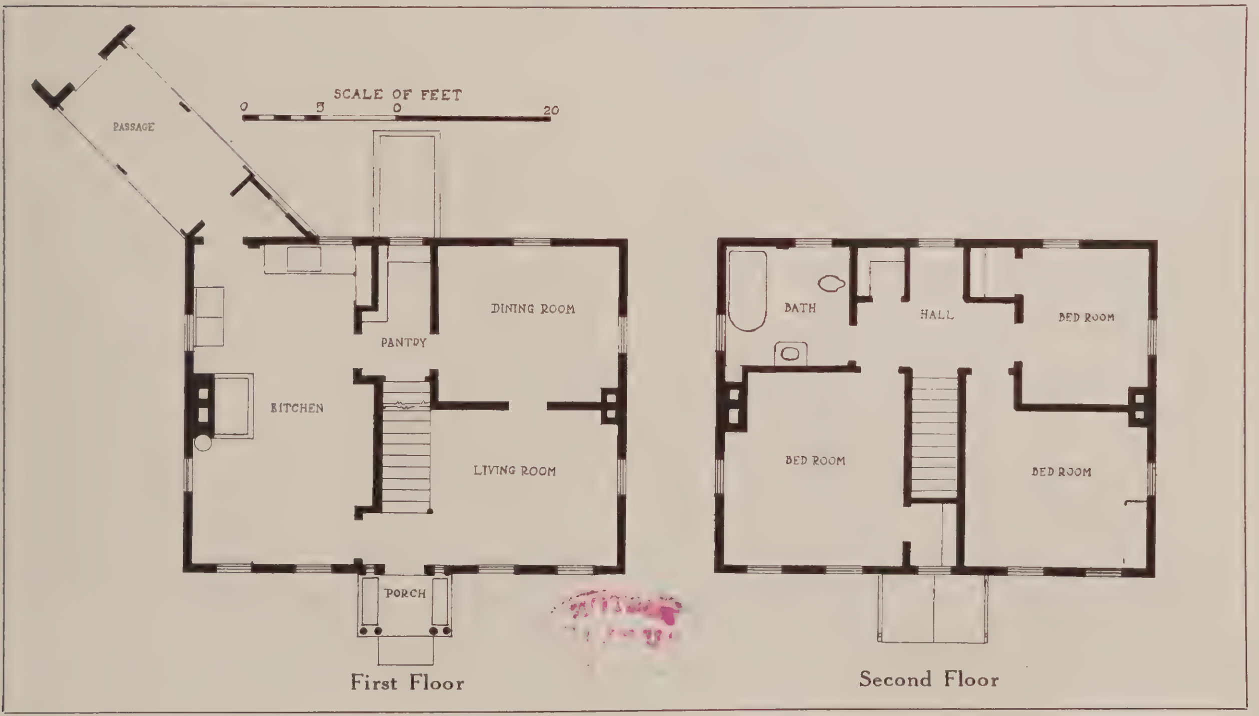


The Front Door



SMALL COLONIAL HOUSE AT PERRYSBURG, OHIO
ALFRED HOPKINS, ARCHITECT

THIS white house with green shutters forms part of an unusually attractive farm group. An old fashioned covered arcade connects the rear of the house with the stable and garage. The exterior design is very simple, having two end chimneys and no dormers to break the graceful slope of the roof. In place of dormers, five small windows, which are located just below the eaves in a sort of frieze treatment, help to light and ventilate the second story rooms. As the first floor height is only 7 feet,



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 36

Small Colonial House at Perrysburg, Ohio; Alfred Hopkins, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR WALLS:
Hand-split cypress shingles.

WINDOWS:
Double-hung; wood frame and sash, old fashioned farmhouse size, about 2 feet, 4 inches by 4 feet, 8 inches.

ROOF:
Red cedar shingles.

FLOORS:
Quartered oak, stained dark.

HEATING:
Steam.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine trim and doors, painted.

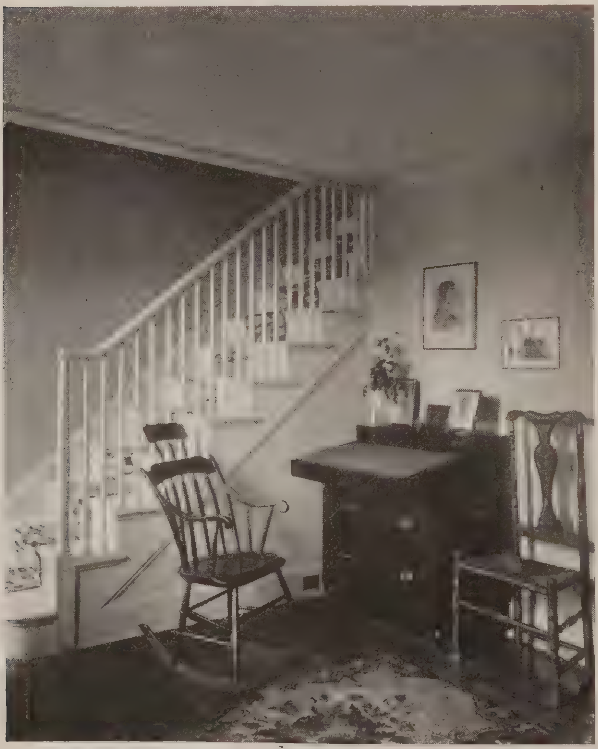
INTERIOR WALLS:
Hard finished plaster, painted in some rooms, papered in others.

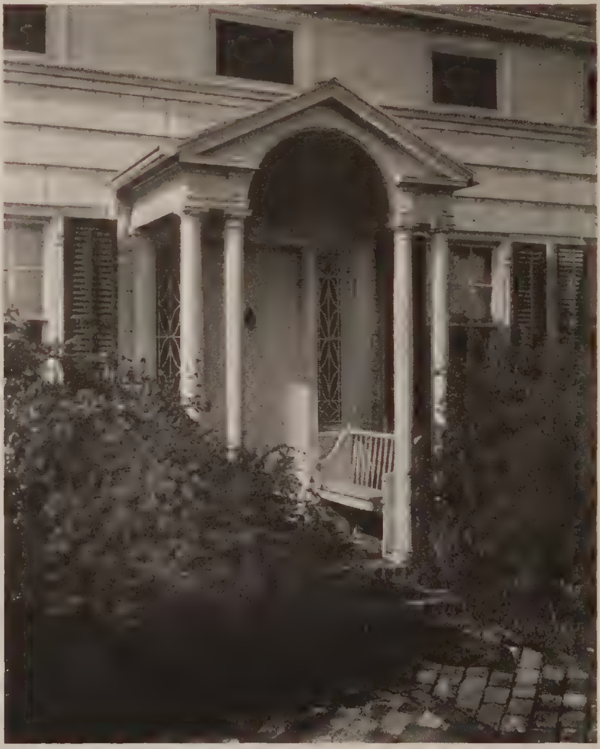
INTERIOR DECORATIVE TREATMENT:
Simple, old fashioned farmhouse style.

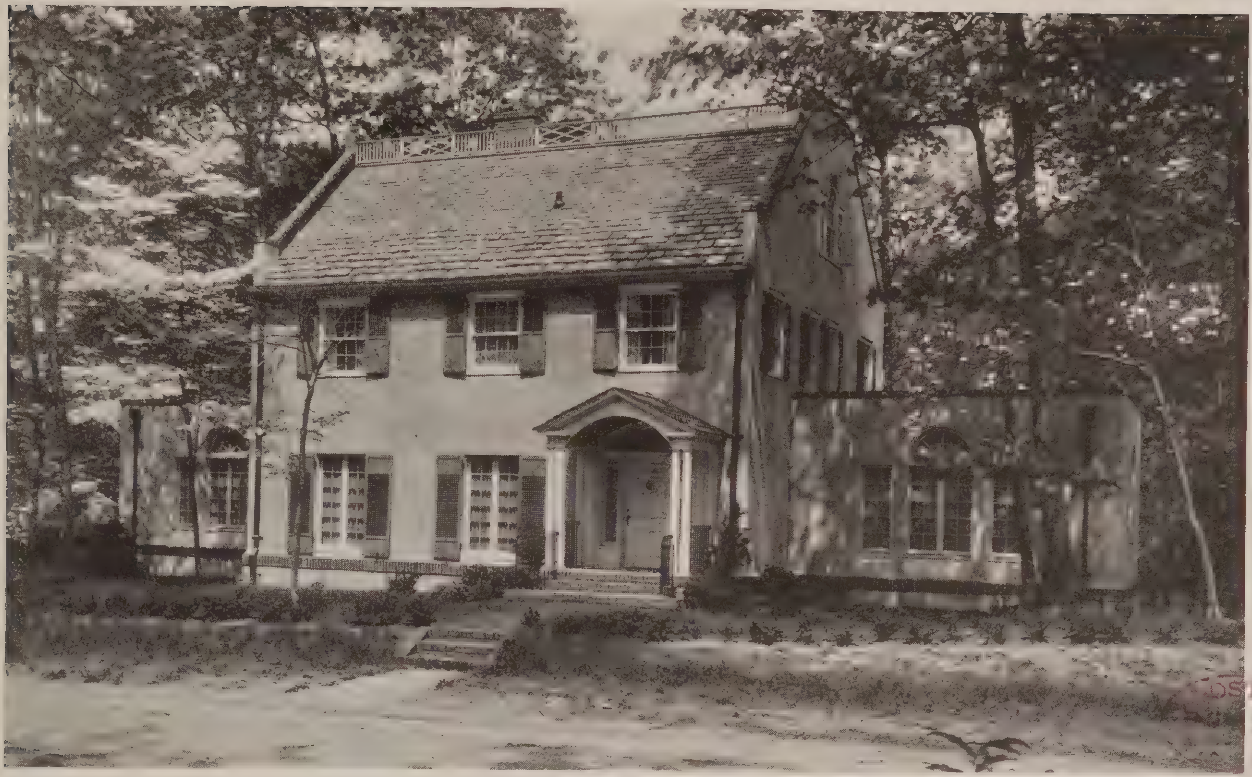
YEAR OF COMPLETION:
1919.

6 inches, it is possible to get a vertical wall of 4 feet, 10 inches on the outsides of the rooms on the second floor under the slope of the roof. In the upper part of this 4-foot, 10-inch wall are located the small, oblong windows, surrounded by smooth siding, which together form a frieze across the front and back.

The walls of the house are covered with 24-inch, hand-hewn shingles, painted white, which if kept painted should remain in good condition for at least a century. The chief decorative features of the house, as is usual in Colonial domestic architecture, are the front door and the entrance porch, which in this case possess unusual delicacy and beauty of detail. Leaded glass ornaments the narrow side lights of the front door, while the semi-circular louver set against a solid panel above repeats the arched effect of the porch opening which breaks up into the pediment formed by the porch roof in characteristic English fashion. Graceful coupled colonnettes support ornamental panels in the entablature above. A dentiled moulding enriches the cornice which supports the overhang of the roof eaves on the front and back of the house. Brick steps and a brick walk lead through shrubbery and flower beds to the low brick entrance porch, at the sides of which are placed old fashioned benches.

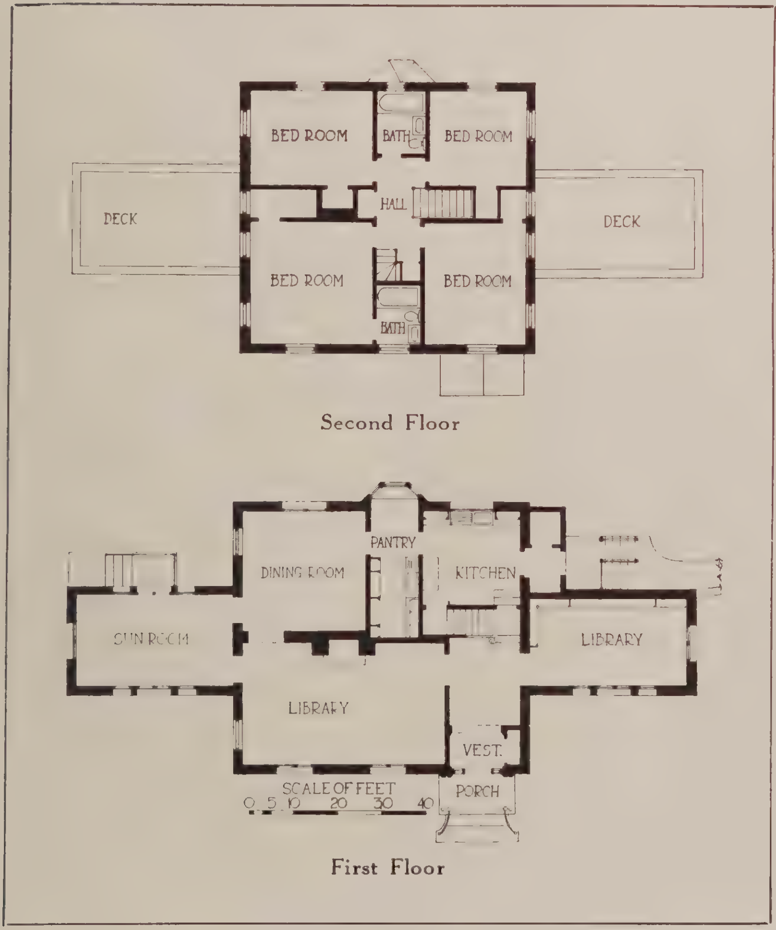

Corner of Living Room


Entrance Porch



STUCCO HOUSE IN COLONIAL STYLE AT GREAT NECK, N. Y.

OSWALD C. HERING, ARCHITECT



Second Floor

First Floor

ALTHOUGH stucco is not often used for the exterior of modern houses in the Colonial style, there is ample precedent for its use in and around Philadelphia, Baltimore, Washington and the cities of the South, where stucco was very frequently used in the colonial period as an exterior covering for brick or stone walls. The use of wood lathing for stucco was less common. This house at Great Neck shows a straightforward, well balanced design with a spacious and hospitable covered entrance porch and long casement windows on the first floor, which are balanced above by three pleasantly proportioned windows located directly under the slight overhang of the eaves. A roof of graded rough slate, laid random, crowned by a low, Colonial railing, still further heightens the Colonial effect of the house. The two ends carried up above the roof line are coped with brick. Each of these gable ends shows a well proportioned Palladian window on the third floor. The soft tint of the stucco is relieved by the brick sill course, entrance steps and

(Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 37

Stucco House in Colonial Style at Great Neck, N. Y.; Oswald C. Hering, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Frame superstructure on poured concrete foundation.

EXTERIOR WALLS:
Stucco on metal lath; brick coping set in copper.

ROOF:
Slate, graded in thickness and variegated in color.

WINDOWS:
Wood, casement and double-hung.

FLOORS:
Oak.

HEATING:
Hot air.

PLUMBING:
Extra large supply and waste pipes, to insure quick filling and emptying of bowls, tubs and sinks; fixtures, enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood, painted.

INTERIOR WALL FINISH:
Wall board in place of plaster.

INTERIOR DECORATIVE TREATMENT:
Painted walls and ceilings; sponge finish on last coat.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
50,000.

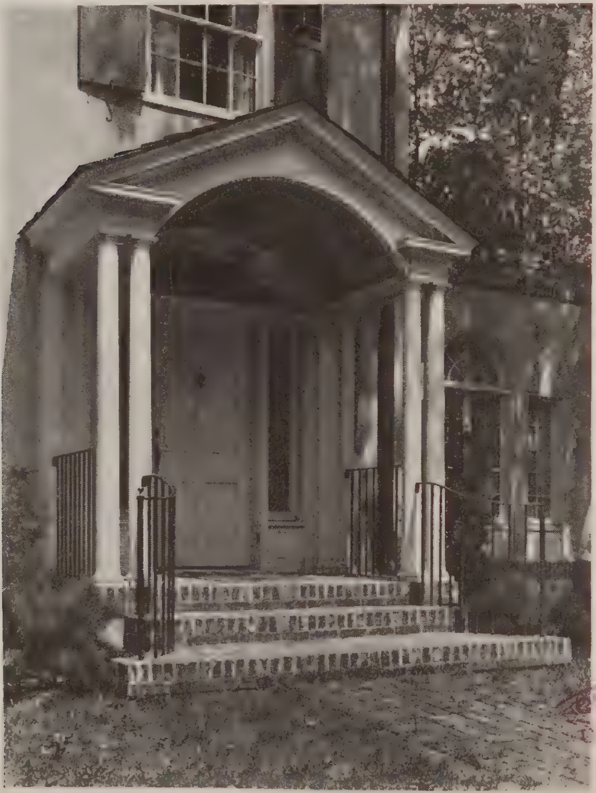
YEAR OF COMPLETION:
1922.

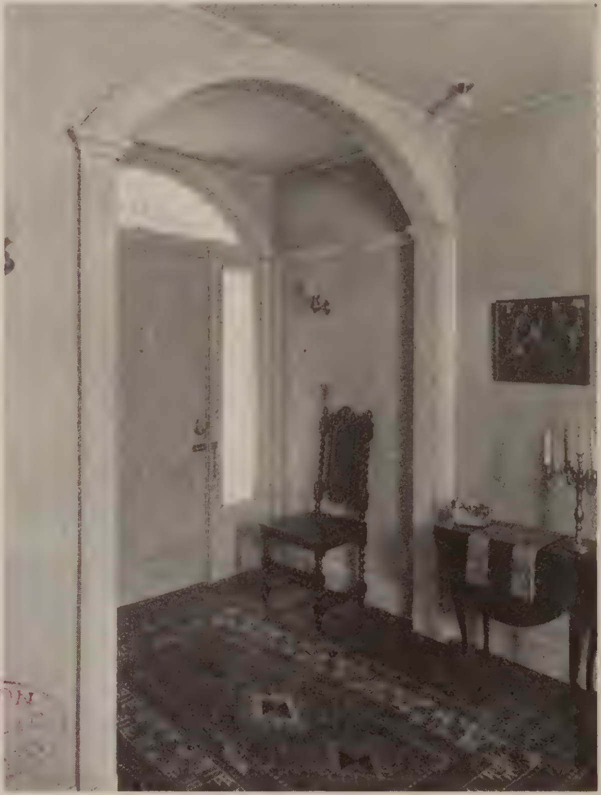
(Perspective and Plans on Preceding Page)

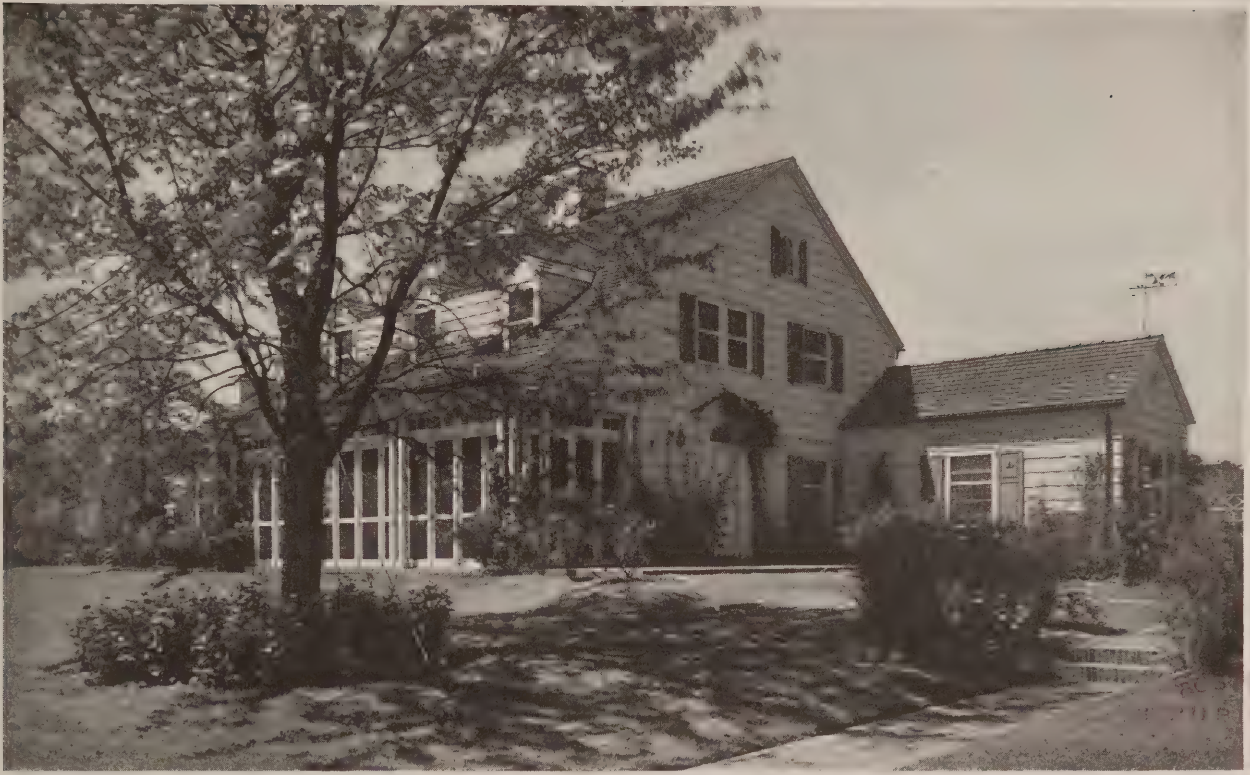
path, the coping of the roof gables and the two one-story enclosed porches. Shutters painted blue-green show a good combination of solid panels and louvers.

The plans also are interesting on account of the arrangement of the rooms, which is different from that of the usual small Colonial house. This attractive and convenient arrangement is partly due to the location of the entrance porch and front door at one end, instead of at the center of the front elevation. This end location of the front hall and stairway makes it possible to have a large living room across two thirds of the front of the house, connecting at one end with the large sun room and at the rear with the dining room. The unusually long pantry has a bay window at one end, arranged with table and seats as a breakfast alcove.

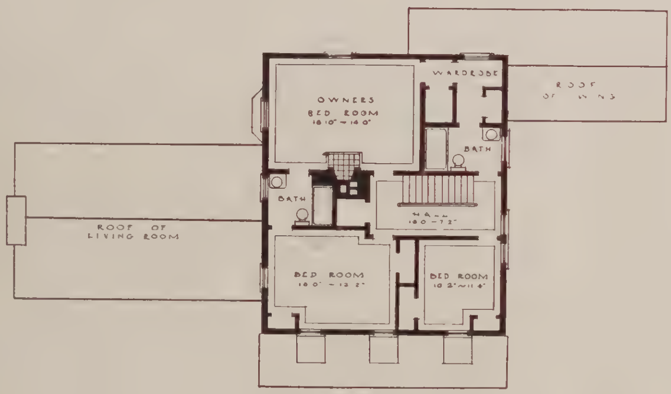
The kitchen is good sized and connects with the main stairway by three steps. At the right of the entrance hall is a large library, equal in size to the sun room at the opposite end of the house. Under this library is a single-car garage, which opens onto the lower level of the rear part of the property.


Entrance Door

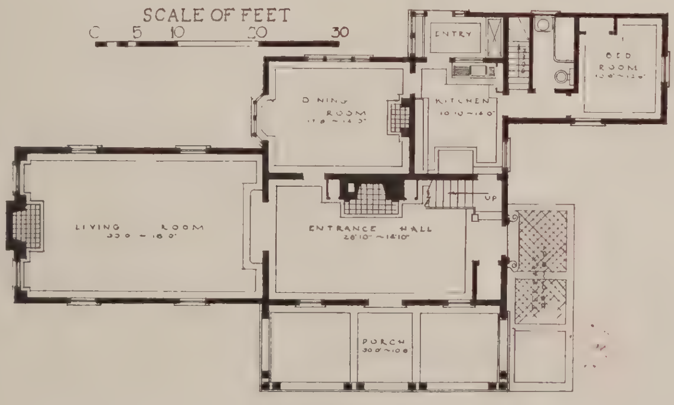

Front Hall



PICTURESQUE HOUSE, UTILIZING COLONIAL DETAILS, AT FREEPORT, N. Y.
DWIGHT JAMES BAUM, ARCHITECT



Second Floor



First Floor

THE charm of this variation of the Colonial style in modern domestic architecture lies in the free and successful handling of the plan and the details. The continuation of the long roof line over the living porch, the introduction of the entrance door and terraced platform at the end instead of the center of the plan, and the balancing of the design by low, one-story wings, give this house unusual character.

One of the attractive features of this house is the way in which it sets low and spreads out above the ground, producing an effect of solidity and security. The less foundation showing below a house, the more attractive is the resulting appearance. The green painted shutters and blinds make a pleasant note in contrast with the white painted shingles of the house. The long roof slope with the cut-in dormer windows over the living porch gives the appearance of a story-and-a-half house. The delicate detail of the entrance door with its broken pediment is reminiscent in scale and character of some of the beautiful

(Specifications and Costs on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 38

Picturesque House, Utilizing Colonial Details, at Freeport, N. Y.

Dwight James Baum, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR WALLS:
Cedar shingles; cypress trim and cornice.

ROOF:
Cedar shingles.

WINDOWS:
White pine, double-hung.

FLOORS:
Oak in principal rooms; pine in service portion.

HEATING:
Hot water.

PLUMBING:
White enameled fixtures and galvanized iron piping.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood.

INTERIOR WALL FINISH:
Living room and hall, sand finish plaster; dining room, paneled with moulds, painted; second floor, wallpaper throughout.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
52,000.

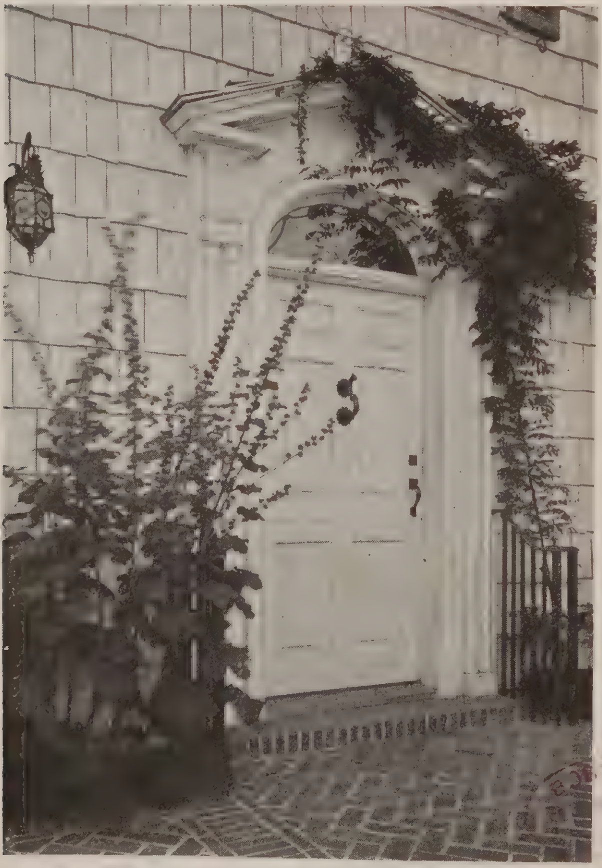
DATE OF COMPLETION:
January, 1922.

(*Perspective and Plans on Preceding Page*)

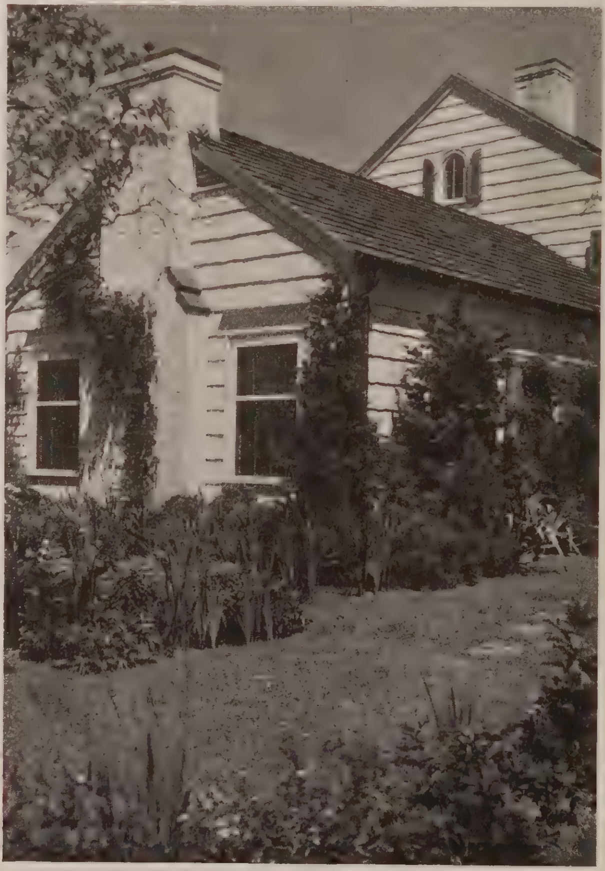
work at Homewood, in Maryland. Graceful engaged colonnettes support the fluted entablature blocks upon which there rests the vigorous pediment.

The first floor plan shows an entrance hall, out of which the stairway leads to the second floor. Beyond the hall is a large living room, which occupies one of the low wings of the house. In the other one-story wing are located a servants' bedroom and bath, and stairs to the cellar. The second floor contains three bedrooms, two baths and an unusual number of large closets of several different kinds, some being beneath the eaves.

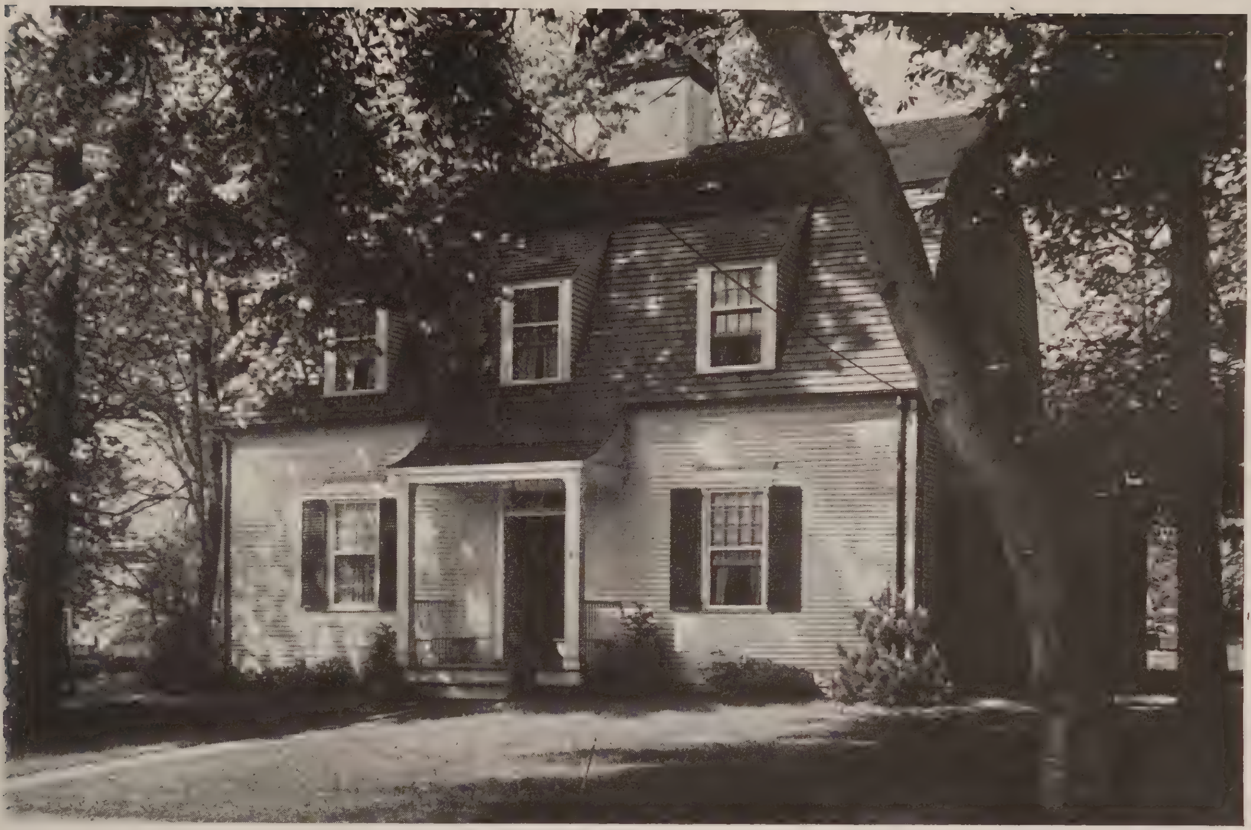
The house is noteworthy as possessing considerable old fashioned charm and yet being both practical and comfortable. It might easily have been standing upon its site for considerably more than a century.



Entrance Door



Living Room Wing

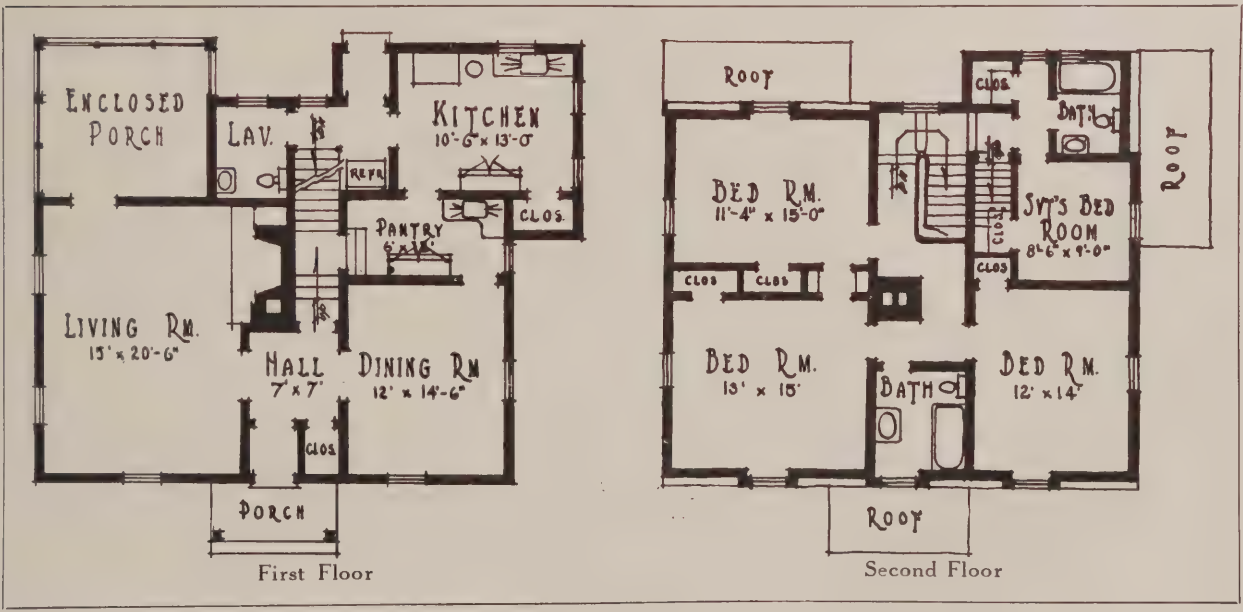


SMALL COLONIAL HOUSE AT FLUSHING, N. Y.

ROGER H. BULLARD, ARCHITECT

THIS homelike and snug little farmhouse needs no description, since it speaks for itself. The hospitable little entrance porch, with its side seats, small front entrance with its outside louver door, and the two happily proportioned small-paned, well balanced windows, are satisfying and appealing to the artistic soul. The gambrel roof, with its simple dormers and large, squat center chimney, heightens the old fashioned atmosphere so successfully caught in this simple design. It possesses marked individuality and a dignity rare in so small a building.

The plans are as compact and convenient as the exterior is simple and charming. A small entrance hall separates the living room and dining room. A kitchen, butler's pantry, back hall and glassed-in porch occupy the rear of the first floor. The second



First Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 39

Small Colonial Farmhouse at Flushing, N. Y.; Roger H. Bullard, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR WALLS:
Narrow, red cedar siding, laid 3 inches to the weather.

ROOF:
Red cedar shingles, stained.

WINDOWS:
White pine, double-hung.

FLOORS:
Comb-grained Georgia pine.

HEATING:
Vapor steam.

PLUMBING:
Enameled iron fixtures; brass piping throughout.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
Stock doors of birch; all trim white wood.

INTERIOR WALL FINISH.
Hard finished plaster, papered throughout except kitchen, pantry and bathrooms, in which enameled paint is used.

INTERIOR DECORATIVE TREATMENT:
Early Colonial details; cornices, mantels, arches, etc.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
35,295

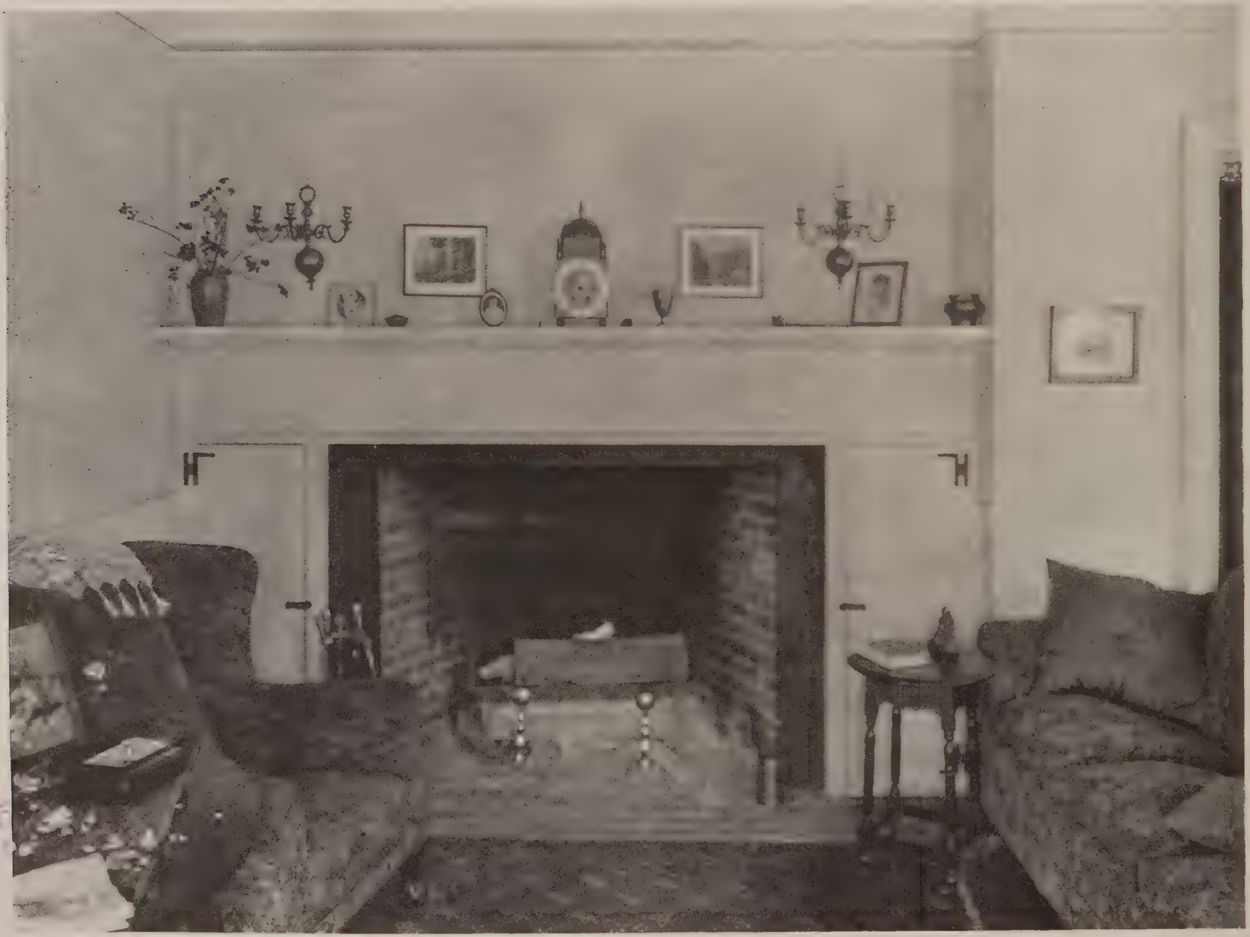
COST PER CUBIC FOOT:
51 cents, including all equipment, such as screens, fixtures, plumbing, wiring, hardware, grading, etc.

DATE OF COMPLETION:
April 1, 1923.

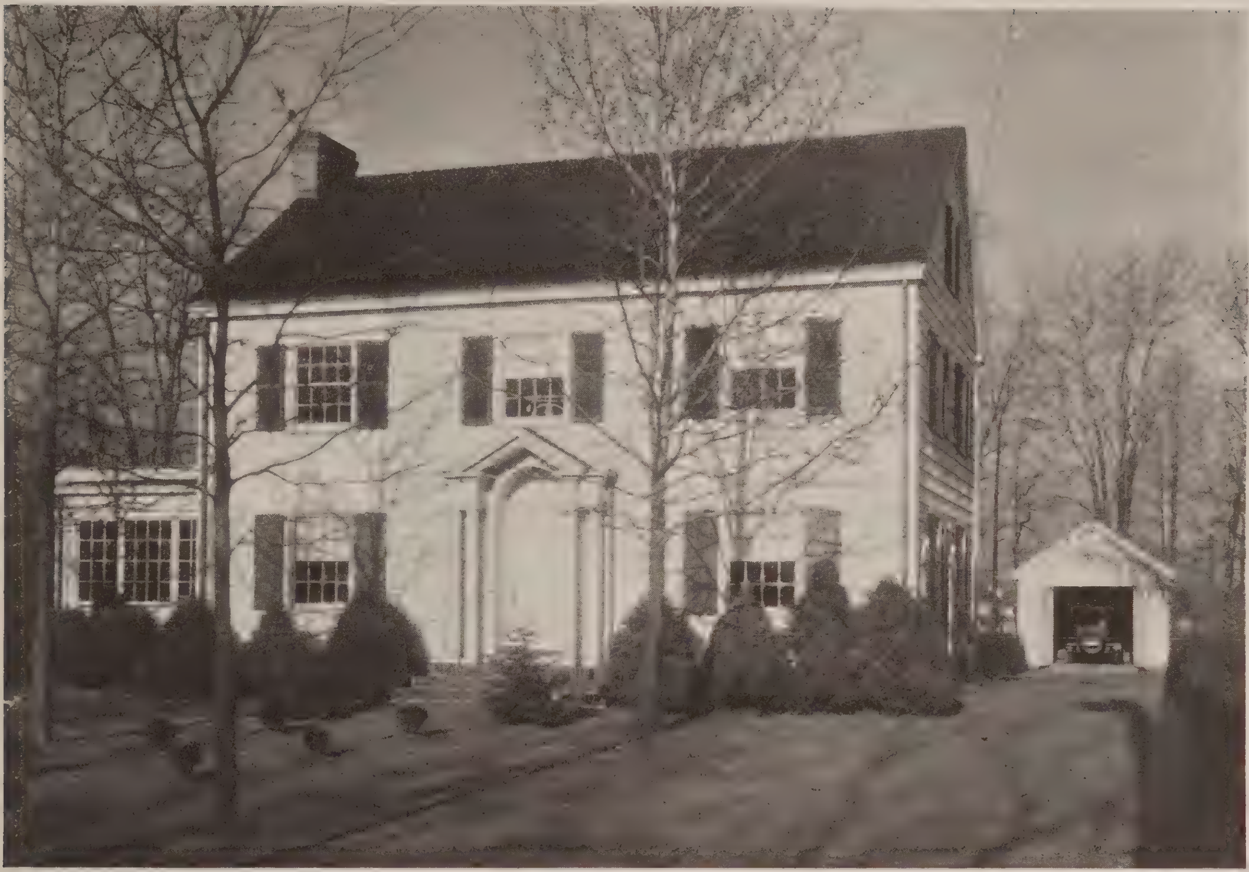
(*Perspective and Plans on Preceding Page*)

floor has three master bedrooms and bath, as well as a servant's bedroom and its own individual bath.

The house owes much of its distinction and charm to the restraint which has been exercised in use of ornament. The entire trim has been designed in faultless taste, and if any details were to be singled out for particular commendation they might be the graceful transom of leaded glass above the main entrance doorway, and the quiet, simple living room mantel which is illustrated in detail upon this page.

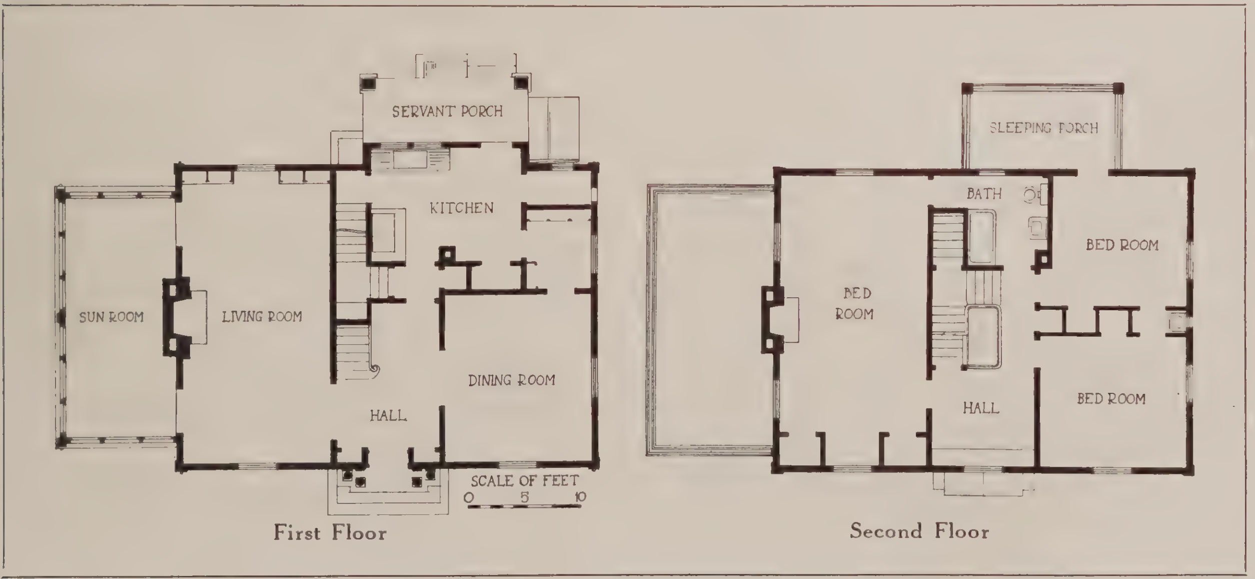


Fireplace in Living Room



SMALL COLONIAL HOUSE AT WESTFIELD, N. J.
HOLLINGSWORTH & BRAGDON, ARCHITECTS

THIS little house gives an impression of dignity and cheerfulness. The windows are large but well proportioned, suggesting light, sunny rooms within. The green shutters of the first floor and the blinds of the second floor give color to the walls, which otherwise would be glaring in their whiteness. The entrance door, in its almost monumental treatment, gives a note of dignity to the design in keeping with the correct severity of Colonial design. Free-standing columns, of pleasantly slim proportions, and paneled pilasters are grouped at either side of the entrance door, supporting a broken frieze, cornice and pediment above. Into this broken pediment the semi-circular arch and slim keyblock of the door architrave are projected. The door itself is set back into a deep reveal, which suggests a sub-



FORUM SPECIFICATION AND DATA SHEET — 40

Small Colonial House at Westfield, N. J.; Hollingsworth & Bragdon, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:
Wood frame.

EXTERIOR WALLS:
Cypress shingles, painted white.

ROOF:
Shingles, stained green.

WINDOWS:
Wood, double-hung.

FLOORS:
Oak throughout.

HEATING:
Vapor steam.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood, Colonial trim.

INTERIOR WALL FINISH:
Hard plaster, painted.

INTERIOR DECORATIVE TREATMENT:
Painting, and wallpaper in the Colonial style.

APPROXIMATE CUBIC FOOTAGE OF BUILDING:
38,800.

COST PER CUBIC FOOT:
29 cents.

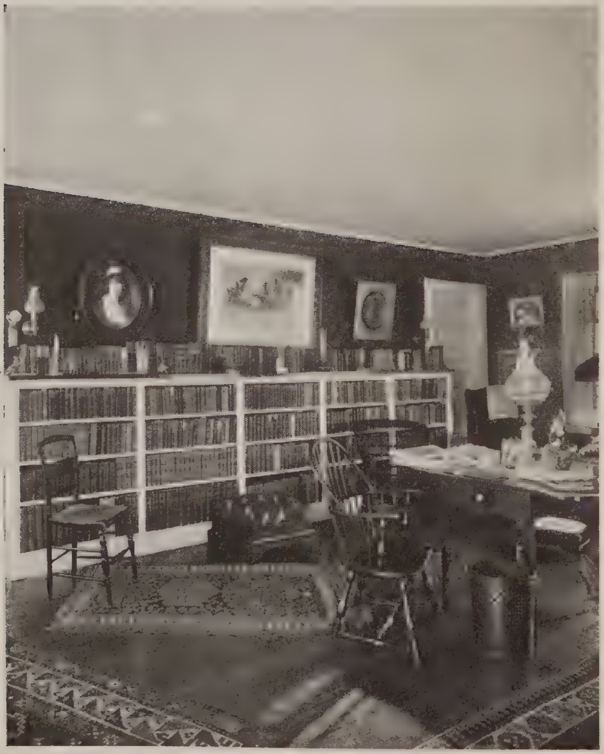
YEAR OF COMPLETION:
1917.

(Perspective and Plans on Preceding Page)

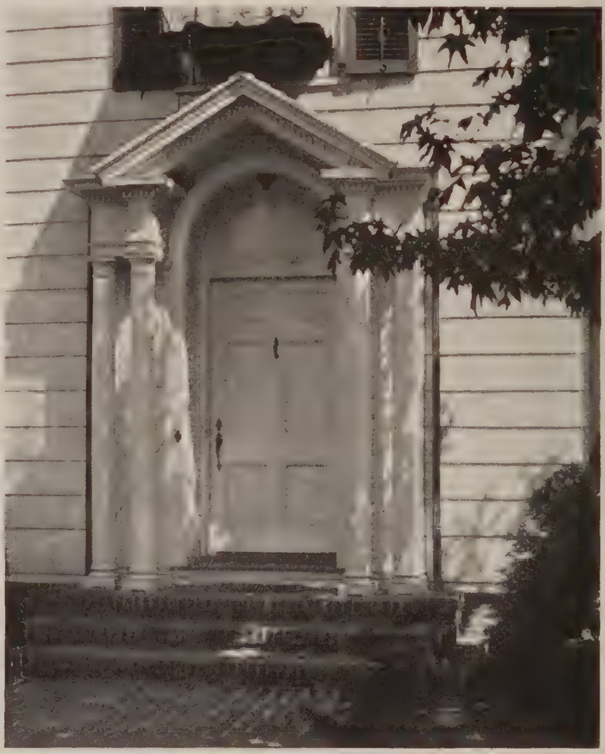
stantial but fictitious thickness of the walls. The semi-circular arch above the door is filled in with a solid louver sunburst. This characteristic detail was often painted green in late colonial days, to correspond with the green painted louver doors used in summer to admit the air and keep out the glare.

The glassed-in porch at one end of the house is handled with satisfying skill. Corner pilasters support the entablature and the low parapet above. The openings of the porch, divided into thirds, are filled in with well designed small-paned window sashes.

The plan shows a typical arrangement of a small rectangular house, with a center hall separating a large living room on one side from a small dining room on the other, with sun porch off the living room, and butler's pantry, kitchen and servants' porch at the rear. A short flight of stairs connects the kitchen with the upper landing of the front stairs, thus obviating the necessity of having two flights of stairs. Three bedrooms, bath, and a large stair hall make up the plan of the second floor. The third floor contains two servants' bedrooms and bath.



Living Room



Entrance Detail

INTERIOR ARCHITECTURE

Hotel Senecterre, Paris

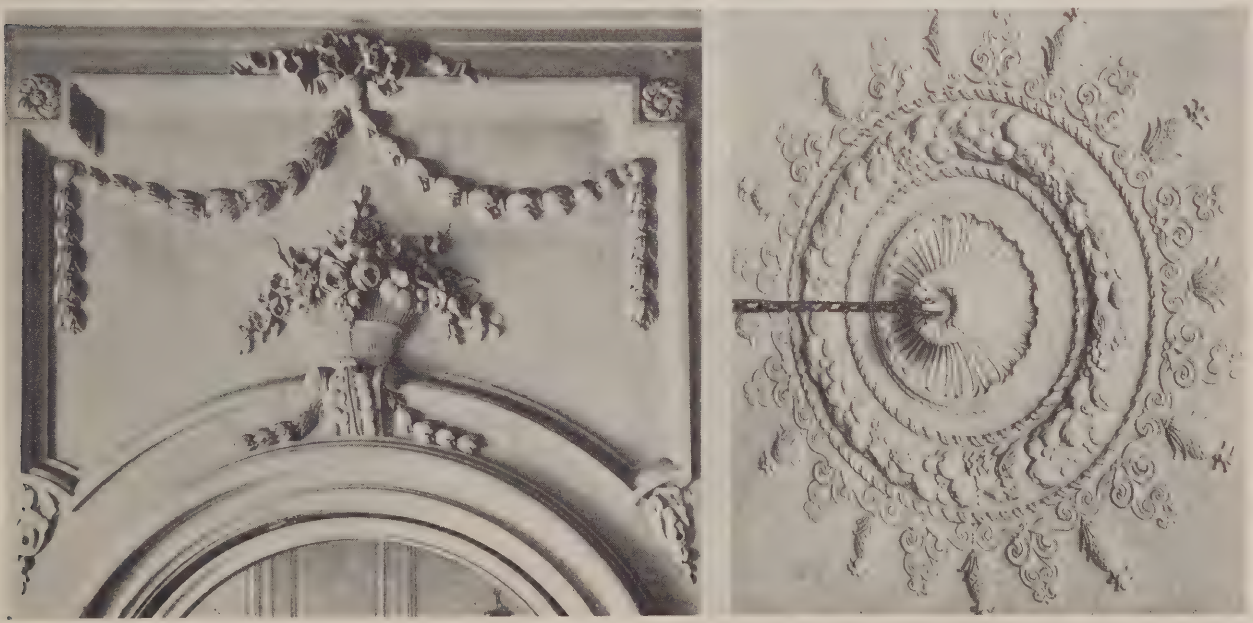
By C. HAMILTON PRESTON

THE Hotel Senecterre, aside from being a masterpiece of rare beauty, holds great interest for the architect as being one of the few private works extant of the great master Servandoni. Ward in his "Architecture of the Renaissance in France" definitely decides the style of Louis XVI to be the creation of two architects,—Jean Nicholas Servandoni (1695-1766) and Jacques Germain Soufflot (1714-1780), both citizens of Lyons, a city always in close contact with Italian thought. Servandoni, going to Florence as a young man to study under Giovanni Paolo Panini, a painter of the Campagna and of the Roman ruins, and afterwards to Rome itself, fell under the influence of the new Italian classicism.

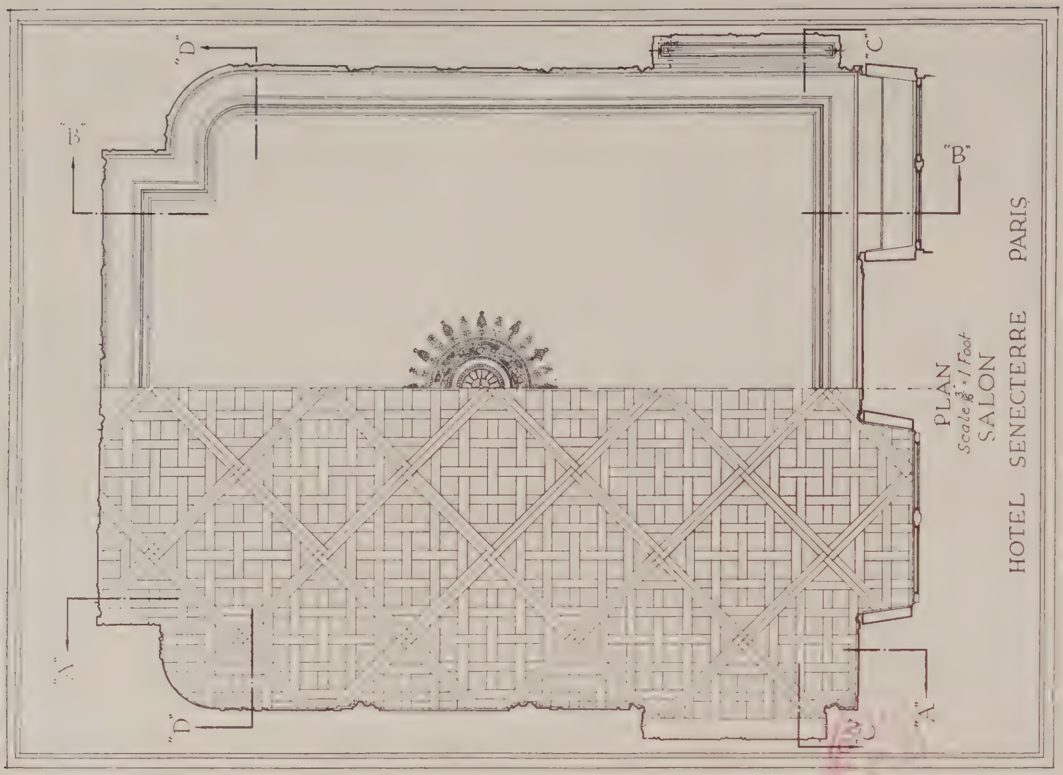
Returning to France in 1724, he soon became the designer of the decorations of the Paris Opera. An enthusiasm for ancient art inspired his work there, as well as that of his master Panini, who was employed to design the decorations in honor of the birth of the Dauphin (1729). His idea excited admiration, which though not very widespread was sufficient to secure for him the first prize in the competition held for the facade of St. Sulpice in 1733. This dignified design, of virile simplicity and with entire absence of affectation, made a profound impression upon an age which was already beginning to tire of the restless Rococo. Men like Bouchardon, Soufflot and Gabriel immediately felt the effect of this return to simplicity and became champions of the puristic revolt, with the result that only a few years later some of the best work in France was done.

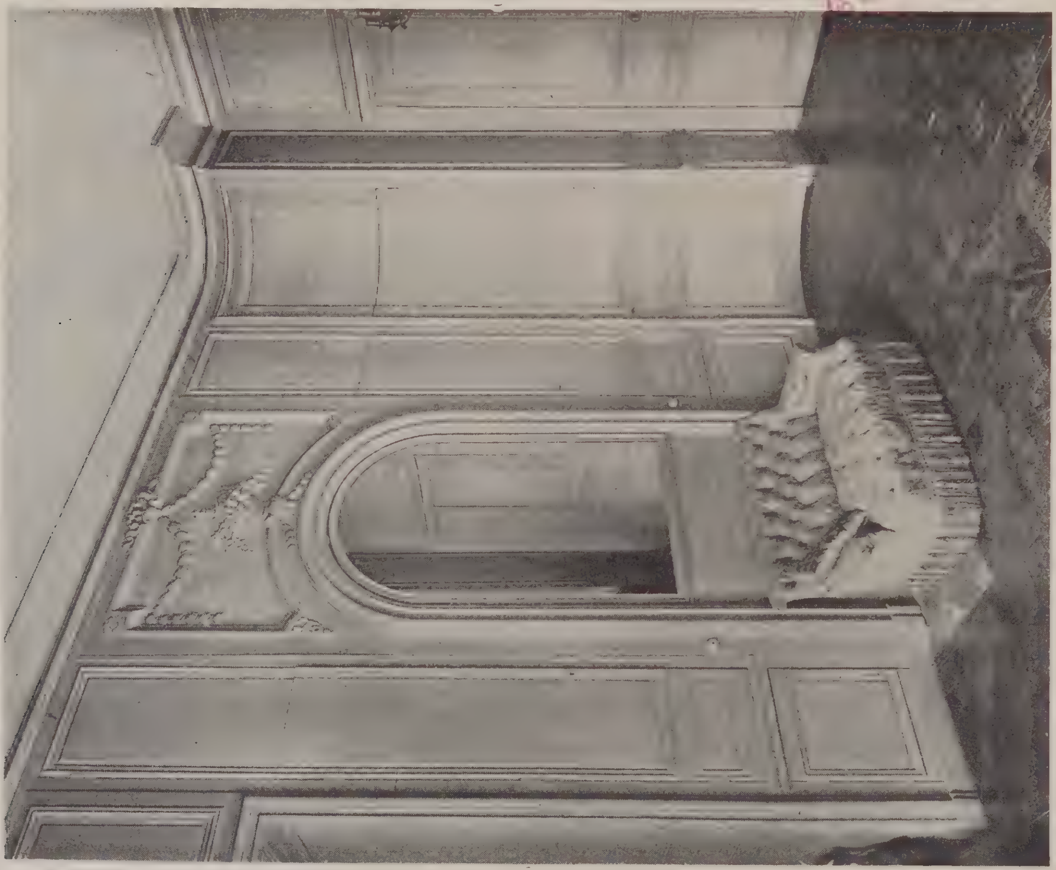
At a time not far removed from that of the design for the facade of St. Sulpice, Servandoni designed the Hotel Senecterre, the subject of our sketch, for M. de La Monnoye, on ground forming a part of the Pre Aux Clercs, a neighborhood which is very familiar to all students at the Ecole des Beaux Arts. This house is justly considered one of the most gracious in the entire Faubourg St. Germain.

The *petit salon* of our sketch is a room of very excellent lines, interesting in plan. The mantel unfortunately is missing, but the overmantel remains intact with its graceful arch enclosing a mirror, the surrounding moulding of which is unusually vigorous, the whole surmounted by a garland with a basket of fruit and flowers of exquisite beauty and rarest carving. The mouldings of this room are among the best to be found. The cornice is bold and vigorous and well scaled to the lofty height. The entire effect is that of regal simplicity and nobility, satisfying to the last degree in the vigor of detail and mouldings. In Senecterre we see to the best advantage, in a work of intimate interpretation, the real Servandoni, who, although devoted to classical severity, sowed the seeds of the puristic reaction.

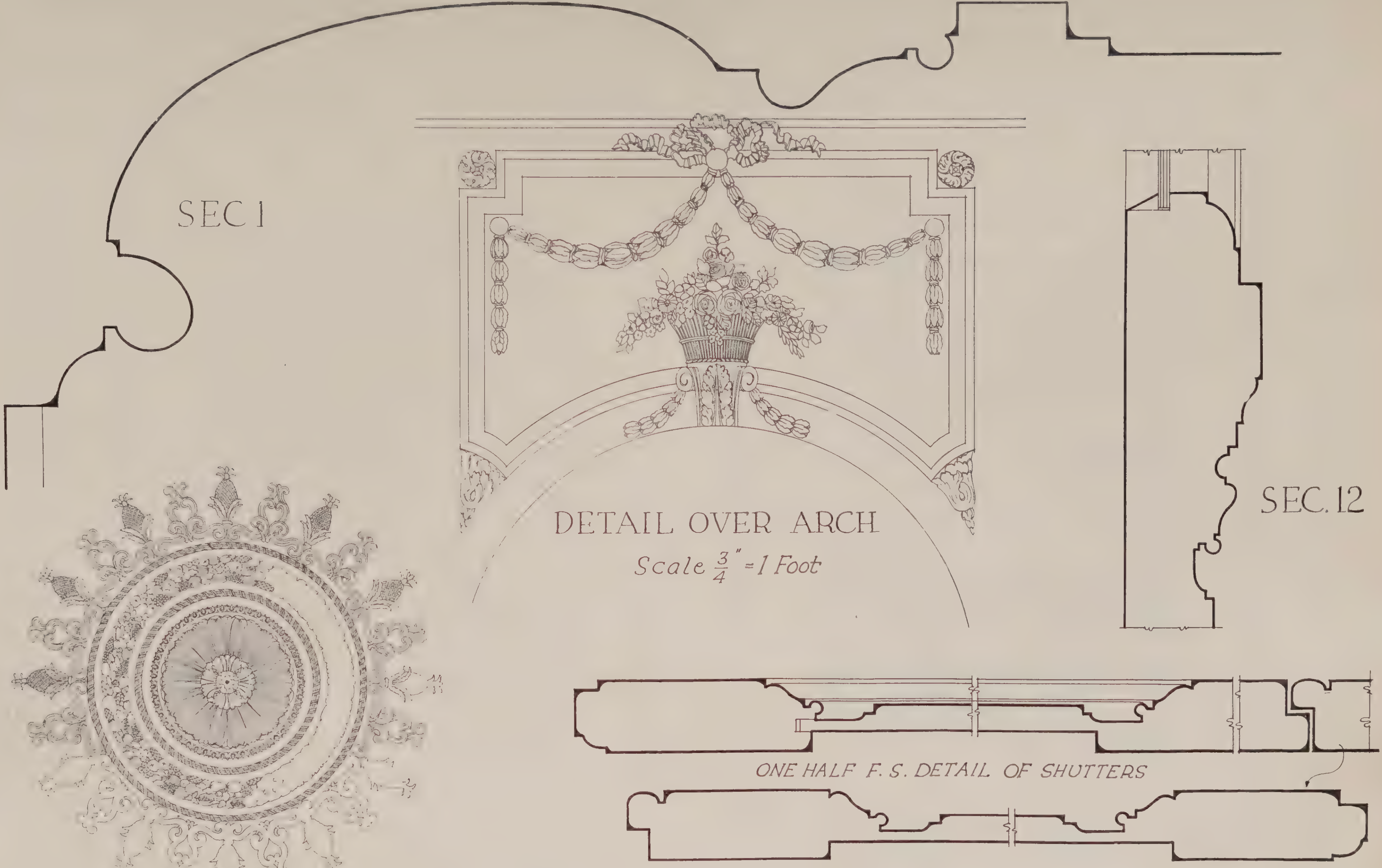


Details of Overmantel and Ceiling Decoration, Hotel Senecterre, Paris





HOTEL SENECTERRE, PARIS

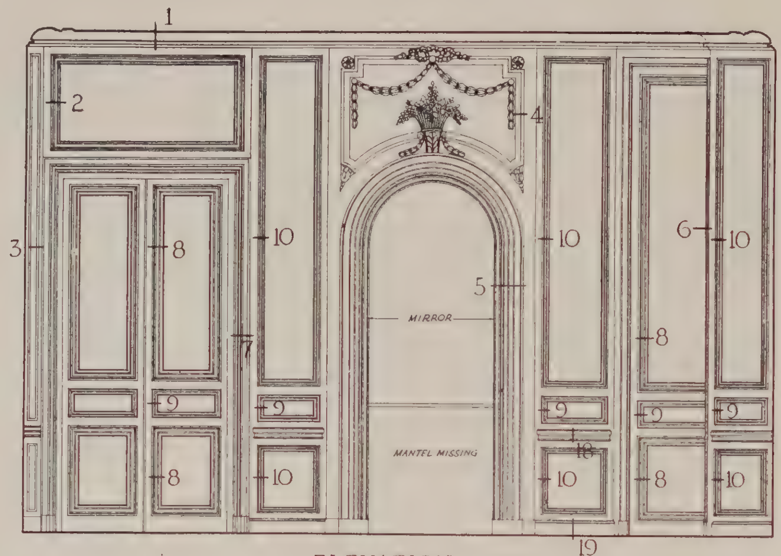


DETAIL OVER ARCH
Scale $\frac{3}{4}''$ = 1 Foot

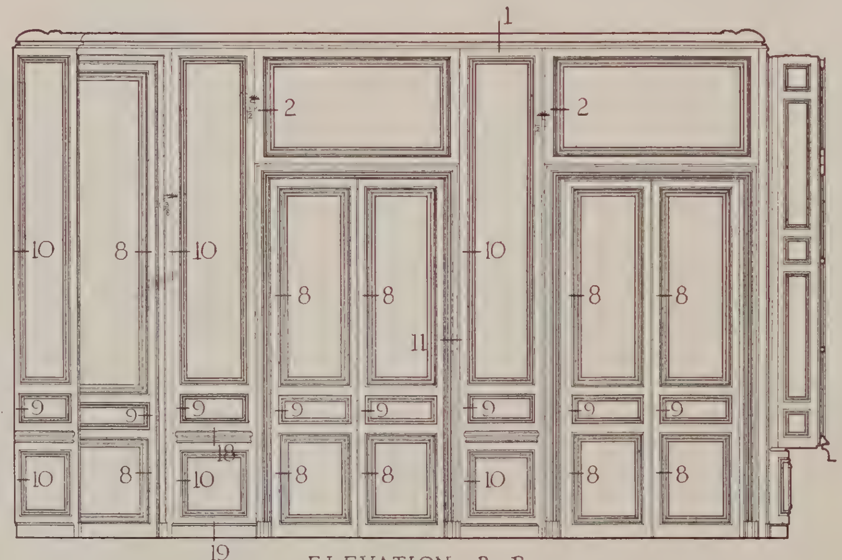
ONE HALF F. S. DETAIL OF SHUTTERS

DETAIL OF CENTERPIECE IN CEILING Scale $\frac{3}{4}''$ = 1 Foot

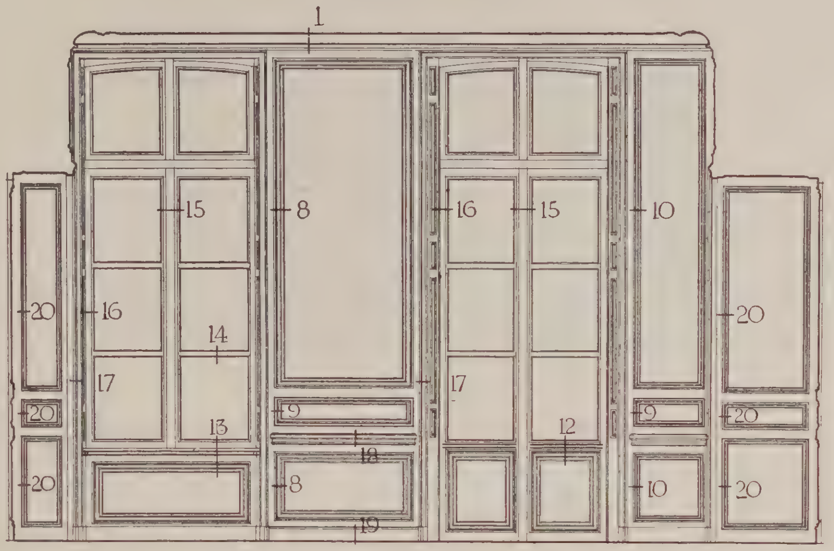
DETAILS
SALON
HOTEL SENECTERRE PARIS



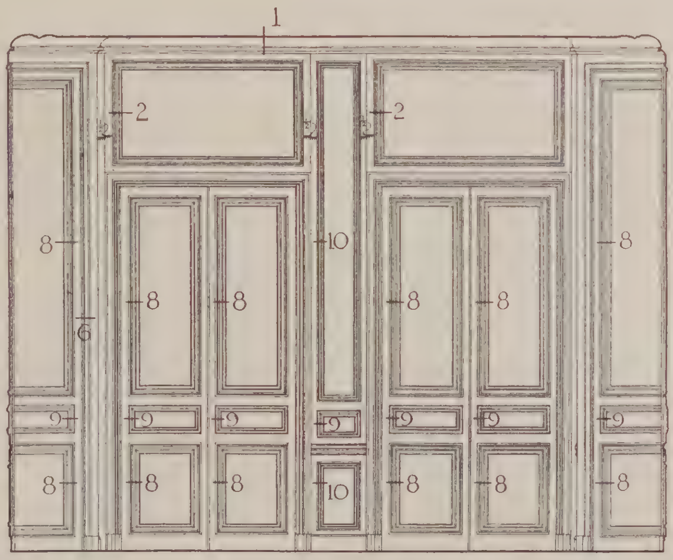
ELEVATION A~A
Scale $\frac{3}{16}$" = 1 Foot
SALON
HOTEL SENECTERRE PARIS



ELEVATION B~B
Scale $\frac{3}{16}$" = 1 Foot
SALON
HOTEL SENECTERRE PARIS



ELEVATION C~C
Scale $\frac{3}{16}$" = 1 Foot
SALON
HOTEL SENECTERRE PARIS



ELEVATION D~D
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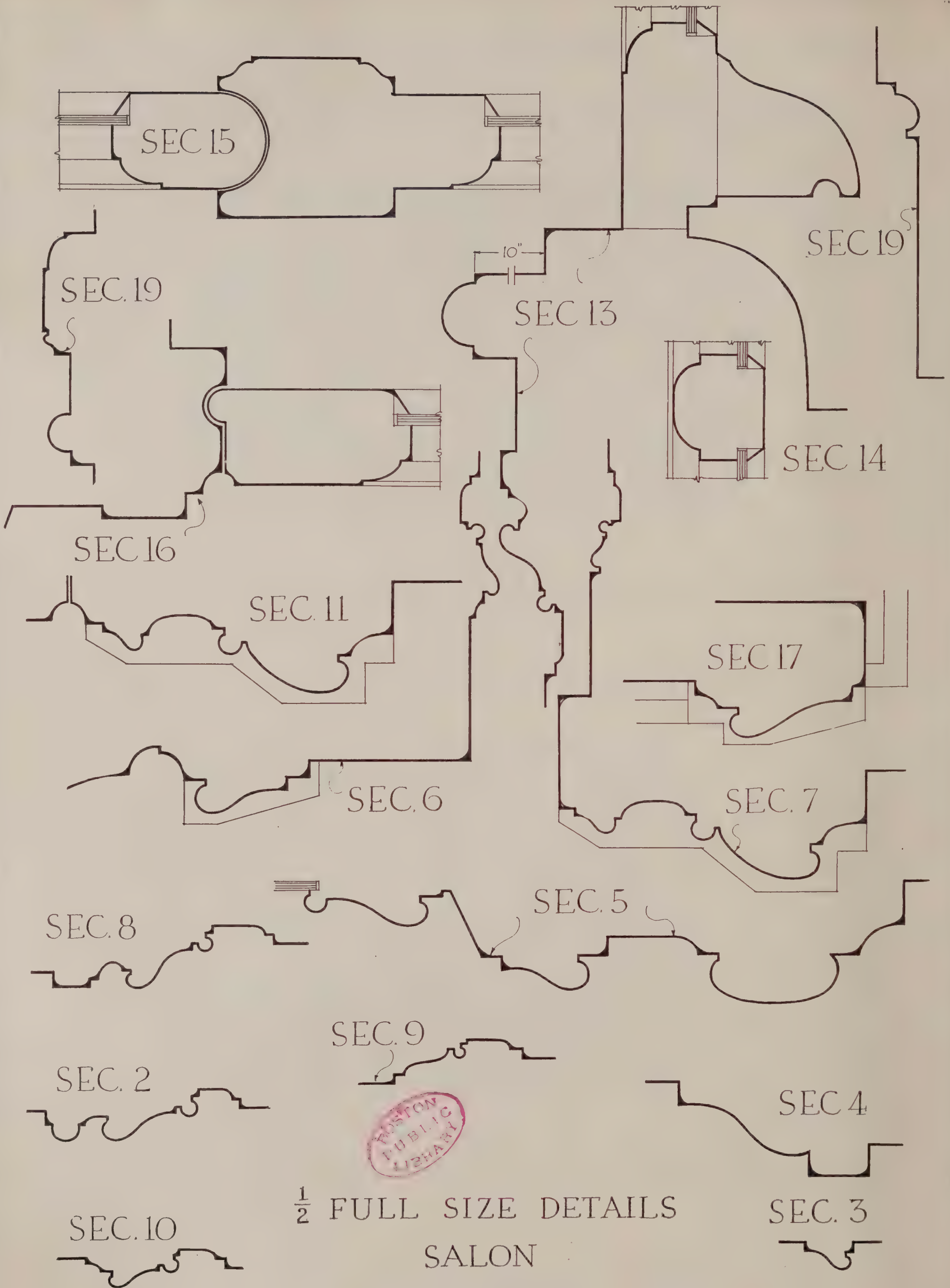
SALON
HOTEL SENECTERRE PARIS



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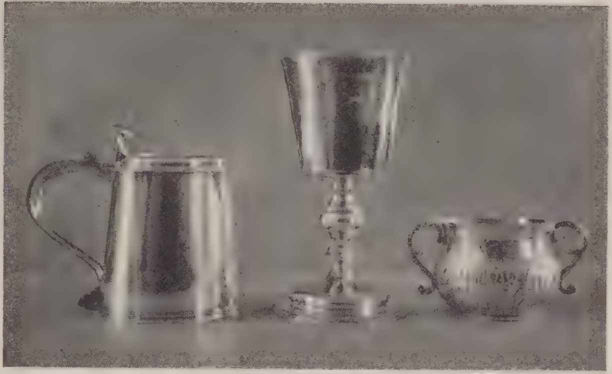
$\frac{1}{2}$ FULL SIZE DETAILS
SALON
HOTEL SENECTERRE PARIS

Design and Craftsmanship in Early American Silver, Part I

By EDWIN J. HIPKISS



American Silver, Made About the Middle of the Seventeenth Century

DURING the eighteenth century, the numerous silversmiths of colonial America produced objects of fine design and craftsmanship, and their work may be ranked with the architecture of the time as two forms of artistic achievement with marked native character. There was a relationship between the two, just as there is a kinship between other decorative arts and early or late phases of architectural treatment. For, while individual skill and manual dexterity in the craft produced an ever-fresh variety in old forms, the general conception of line and mass at a given time left its mark. Pieces of the early eighteenth century are obviously akin to interior woodwork of the time, just as the silver made during the latter part of the century had forms and decoration consistent with the slender grace of furniture in the style of Hepplewhite, Sheraton and their contemporaries.

Many of the silversmiths, or goldsmiths as they were called after an earlier custom, were men honored with public responsibilities, and their names come down to us familiarly in history. There was John Hull, the mint-master of "Pine Tree" Shilling fame, early in the seventeenth century, and the versatile Paul Revere at the end of the eighteenth. The names of many master smiths have been brought together, and their marks have been verified through the work of keenly interested investigators. We know that there were over one hundred at work in Boston during the earlier half of the eighteenth century, and that number does not include assistants and apprentices, nor the men working in other communities, such as Charlestown, Roxbury, Dorchester and other nearby places.

Small groups of men worked in small shops; the apprentices were bound by agreement to their masters and grew up in the craft. Ingots and plates of silver were hammered up by hand into basins, cups, bowls, tankards and numerous other objects; the only device used which approached the nature of a machine was the draw-bench, used for drawing wire or moulded bands of silver through dies of the re-

American Chair, Late Seventeenth Century

Room in Chase House, Newburyport, Mass.

American Silver, Queen Anne Period, Early Eighteenth Century

quired shapes and sizes. Needless to say, modern ideas of standardized parts and mass assembling were undreamed of, for the old idea of individual skill prevailed, and wrought silver was sold in the shops where it was made and by the men who made it. Church services, domestic tableware, even silver coinage, came out of very humble workshops, and so we can easily understand the note in Judge Sewell's diary, under date of June 21, 1707, which reads: "Billy Cowell's shop was entered by the chimney, and a considerable amount of plate was stolen." William Cowell (1682-1736) lived and worked in Boston, and some of his handiwork is illustrated herewith. William Cowell, Jr. (1713-1761) carried on his father's work well into the third quarter of the century. The Cowells were well-known craftsmen, and much of their silver still exists.

To appreciate the skill of the artisan and the quality of his wrought silver, we must realize that "hollow ware" was usually "raised" from flat pieces of silver to seamless bodies of cylindrical or cup-like forms, each out of one piece. Much of the skill of the craftsman was required for the successful "raising" of a beaker without a seam or joint in it. The hammered disc of silver had scribed lines laid on with a compass in regular spacing as guide lines for the worker to follow. The disc was then depressed at the center with a mallet and blocks of hard wood. After a beginning had been made in this way, the form was put over a polished wrought iron "stake," held in a large vise, and the metal was driven before hammer blows following one after another in concentric circles. Annealing became necessary from time to time as the metal hardened under the hammer. This of course softened the silver.

American silver was simply stamped with the maker's initials or name. It was not made under the supervision of a guild or under legalized requirements, as in England during many centuries to the present day, and therefore it is not "hall marked." Assay office and year letter marks on English silver enable us to determine, as a general rule, the place where a piece of silver was made and the year in which it was wrought as well as the name of the maker. But with American silver we depend on design, inscription, and the approximate working dates of a known maker. The marks of over 600 early American silversmiths, mostly of the eighteenth century, have been identified.

Paul Revere had several marking dies, but he generally used the stamp with his surname, REVERE, in a rectangle, found on so much of his work.

American Chair; Queen Anne Period, Early Eighteenth Century

Woodwork in Hannah Robinson House, Saunderstown, Rhode Island

Rec'd [illegible] B.P.L.

F.A

THE ARCHITECTURAL FORUM

JUNE 1925

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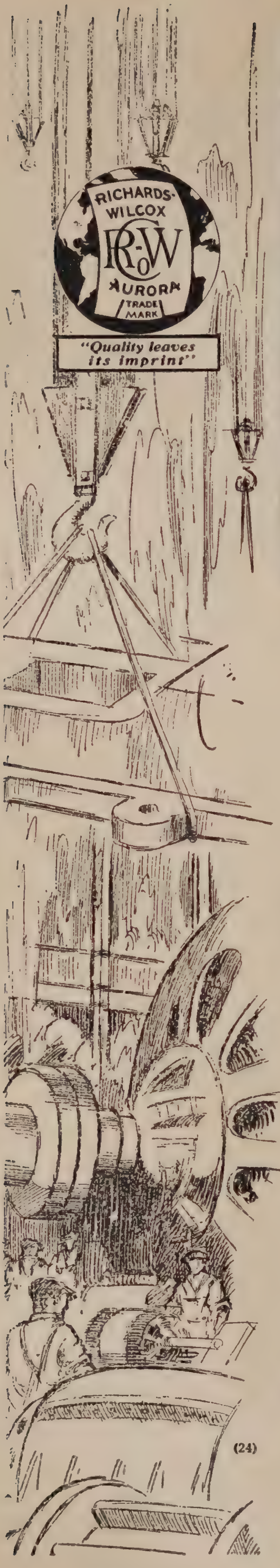

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BOOK DEPARTMENT

Domestic Architecture in Rural Spain

ITS COMPOSITION, DESIGN AND PLAN

SPAIN is a country in which there are to be found many varieties of climate and various types of architecture which are developed in different materials. From the heavily wooded hillsides of the northern or Basque provinces, not far from where the Pyrenees divide Spain from France, there is cut the wood which goes into the half-timbered houses of the comparatively cold and bleak north, in which the fireplace is likely to be the center of interest; elsewhere use is made of granite or stone or of the materials made of clay for building houses of appropriate types, while in Andalusia, the southern province of Spain, the houses are likely to be of rubble or adobe and coated with stucco, the buildings being probably grouped or disposed about a courtyard or patio, the function of which is to bring the freshness and greenery of the garden into the very heart and center of the house itself.

What is popularly known in America as "Spanish domestic architecture" is therefore the type which is found chiefly in Andalusia, high in favor just now in Florida and in southern California, where a more or less languorous climate renders it appropriate, this architectural type having been brought to America originally by the early missionaries, who realized the suitability for use in the New World of what they had left behind them in the Old, an architecture characterized by extreme simplicity, readily developed in materials which are the reverse of costly, and making no very heavy demands on craftsmanship or skilled labor, advantages as important today as ever.

Mr. and Mrs. Byne, during the many years they have lived in Spain, have done much by their published writings to extend in America the popularity of Spanish types of architecture, gardening, decoration and furnishing. In this present volume, which is a valuable addition to the number of their books, there is given a study of the Spanish house as it exists in different parts of the peninsula, giving views of its exterior and interior and in some instances plans and drawings of details. The charm of Spanish residence architecture, particularly in the provincial cities and the small towns and rural districts, lies largely in its skillful composition. Spanish builders seem to possess an almost unerring instinct for the successful disposition of masses of structure, arrangement of fenestration, and for the excellent designing of roofs, especially important since Spanish buildings are likely to be low and spreading and therefore involving large expanses of roof. The same skill which they bring to the designing of their roofs the Spanish builders lavish upon their fenestration. They well know the value of plain wall surfaces; the proportion in a building of openings to solid wall areas is but small, and the openings themselves are likely to be placed just where they are certain to be most effective from an architectural point of view, and probably adorned with wrought iron grilles, suitably ornate or severely simple as occasion demands.

To the charm given by the use of architecture which is simple, graceful and full of character, there is added that given by decorations and furnishings which are powerful aids in interpreting the architecture, and in this volume as in all the works of these authors there are included many illustrations.

An examination of a number of buildings in America designed in the Spanish style leads one to believe that their failure to attain complete success is due chiefly to the use by architects of too much ornament and in too great a variety; or else when the architecture itself is not at fault there is the grave injury which may be done by interior decorators anxious to make the cost as great as possible by the use of everything which could aid in creating a sumptuous and gorgeous effect, well enough in some instances, perhaps, but the very thing which should be carefully avoided unless the reticence, dignity and reserve which constitute so much of the charm of early Spanish buildings are to be completely lost.

This work, like the other volumes from the pens of these writers, will undoubtedly aid considerably in developing appreciation of Spanish domestic architecture.

PROVINCIAL HOUSES IN SPAIN. By Arthur Byne and Mildred Stapley. Text and 190 plates, 12½ x 16 ins. Price $25. William Helburn, Inc., 418 Madison Avenue, New York.

HOUSE & GARDEN'S

"Second Book of Houses"

THE 1925 work—190 pages—on the moderate cost house without and within: site; setting; style; design; material; garage; plan; interior decoration; furnishing; equipment; the entire place, in fact, covered in well selected material, arranged, edited and lavishly illustrated with *House & Garden's* well known taste. Drawings of details of structures and accessories. The work is invaluable to the discriminating home owner or home furnisher. It covers the entire subject. Price $4.

A Country House designed by Frank J. Forster
Illustration from "The Second Book of Houses"

"The First Book of Houses"

CONTAINS 110 pages of illustrations and plans of some of the best moderate-cost homes in the country, of different styles and materials and of great variety of plan. Successful alterations are shown, and there are numerous illustrations of details such as porches, fireplaces and mantels, doorways, windows, stairways and chimneys. An excellent work on the subject. Price $3.

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COLOR IN ARCHITECTURE. By F. S. Laurence, Executive Secretary, National Terra Cotta Society, Issued by the National Terra Cotta Society, New York.

MANUFACTURERS of certain building materials in their desire to render their advertising of value sometimes produce works which would be regarded as notable from more than one point of view. The workers of terra cotta, for example, frequently place architects and students under obligations for the publications which they issue, publications in which are recorded the results of travel, study and research. Terra cotta is a material which possesses honorable and worthy traditions and can point to a distinguished past, made famous by men whose names will live forever.

A most dignified and worthy book is this just issued by the National Terra Cotta Society for distribution among architects. There has evidently been made a search for illustrations of old terra cotta in color which are not too well known to render their use in this way advisable, while illustrations of modern use of colored terra cotta show numerous instances where there are displayed ingenuity and resource in the way of design which would have done credit to craftsmen of the period accounted the palmiest days of the terra cotta industry. In THE ARCHITECTURAL FORUM during many years there have been countless references to terra cotta and other materials which might be said to belong to the same family, and the high degree of excellence to which the makers of terra cotta have now brought their product should be proof positive that work of the present and future has nothing to fear from comparison with the old.

SAILING SHIP MODELS. A Selection from European and American Collections, with Introductory Text by R. Morton Nance. 80 pp. text; 124 plates 10 x 12½ ins. Price $22.50 Halton and Truscott Smith, Ltd., London.

MODERN building of ships might be said to sustain exactly the same relation to the ship building of a century or more ago that the modern structure of brick or terra cotta held up by a steel frame bears to the building of say the period of Sir Christopher Wren. In either case, building in the old fashioned, traditional meaning of the term has ceased. What is now being done is not building but engineering, and in the change the world has suffered considerable loss. When comparing the old sea travel with the new, as when contrasting the building of the time of George III with that of George V, we must realize that there has been much loss of satisfaction to the eye and that we have been made to pay heavily for it. Gone from all the harbors of the world are the endless rows of ships of all sizes under sail, each of them showing fresh beauties with every change of position as they tacked hither and thither, trimming their gorgeously painted sails to the mood of the wind. In their stead have come other vessels that tack no more, but go panting, plodding or racing straight in their courses, with, it would seem, but one idea possessing them, that of removing their factory-like mechanical masses, braving the elements on which they are desecrations, and as hurriedly as possible returning to the steel and concrete docks alongside which they appear to be most at home.

Now for centuries there have been made models of vessels of various kinds which possess much of the interest of the actual vessels themselves. Such models are often made for Navy or Admiralty departments of national governments, for the merchant marine, or for yacht clubs. Sometimes models of ships are placed in town halls or other civic buildings, or in churches as votive offerings, as may be seen in old churches in any European seaport or in certain venerable churches near the docks in Quebec and Montreal. This particular use of ship models indeed is of wide application, for votive junks still hang in Chinese temples, just as church ships hang in the churches of Europe.

This beautifully produced volume covers completely the subject of models of sailing vessels from carrack to clipper. It has a high degree of architectural interest, since the architecture of the great vessels which for centuries represented England, for example, upon the seas was like in many respects to that of the grand homes of the English on land; often the ships rivaled such buildings in splendor. The work is a study in architectural as well as in naval history.

THE DICTIONARY OF ENGLISH FURNITURE; From the Middle Ages to the Late Georgian Period. Vol. 1 (A.—Ch.) By Percy Macquoid and Ralph Edwards, with a General Introduction by H. Avray Tipping, 262 pp., 19 plates in color; lavishly illustrated in black and white. Price $35. Charles Scribner's Sons, New York.

STUDENTS of architecture, decoration, and all the arts which involve use of design owe much to the zeal and diligence of compilers of works of reference in which there are recorded dates, details of origin, definitions and data of various kinds which must sometimes be had, and often at times when to obtain reliable data at first hand or to settle some disputed point would be difficult, if not impossible.

A work which seems likely to be of great value to students and craftsmen is this on English furniture. Prepared by two well known students of the subject, the work represents years of study, skill, patience and accuracy as well as of careful judgment and discriminating taste, and the thought which has undoubtedly been given to preparation of its text is equaled by that given to the selection of its numerous illustrations.

ELEMENTS OF GRAPHICS; Descriptive Geometry, Shades and Shadows and Perspective. By Nathaniel Cortlandt Curtis, Author of "Architectural Composition." 100 pp., 6¾ x 9¾ ins. Price $2.50. J. H. Jansen, Cleveland.

SUCCESSFUL practice of architecture depends in no small measure upon proficiency in drawing, important parts of which are descriptive geometry, perspective, and light and shadow. And yet experience has proved that the theory of each of these subjects is difficult to grasp, one reason being that it is generally difficult to illustrate, and many draftsmen fail to develop their skill as otherwise they might had they had a better grounding and a more secure foundation for some of the very fundamentals of drawing.

Mr. Curtis, a widely experienced teacher of architecture, has prepared this volume in the light of considerable understanding of the difficulties encountered by students in a number of institutions. The work may be recommended with entire confidence to draftsmen and younger architects, while a review of its contents might well be helpful even to architects of considerable experience. The volume is replete with aids and suggestions which experience has found to be helpful indeed.

French Farm Houses, Small Chateaux and Country Churches

By Antonio di Nardo
With Preface by Paul P. Cret

THE buildings of no country offer more in the way of inspiration for present-day architects than those of France. French towns and villages are filled with fine old houses and shop buildings, and the countryside abounds in farmhouses, farm structures singly or in groups, manor houses large or small, and the rural churches and wayside shrines which are among the most beautiful buildings of their kind in the world. All these structures by reason of their direct and practical designing supply the best possible precedent for modern work.

This volume contains more than 300 half-tone illustrations of buildings of this character, and in many instances illustrations of details are given, with drawings showing the bonding of brick or the arrangement of half-timber construction. *The work would be worth many times its cost to any architect interested in the design of domestic buildings and small churches.*

176 pages, 12 x 16 ins.
Price $18 net

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PRE-ROMANESQUE CHURCHES OF SPAIN. By Georgiana Goddard King. Volume VII, Bryn Mawr Notes and Monographs. Illustrated. 248 pp., 38 floor diagrams. 4¼ x 6½ ins. Price $2.50 Net. Longmans Green & Co., New York.

STUDY of the architecture of the Iberian peninsula possesses all the interest which attaches to study of the antiquities of any land of which the culture represents a fusion of that of many races. Spain is a Mediterranean country, peopled from the outset by Mediterraneans. From all the countries which lie about the Mediterranean basin,—not from the Greek and Latin empires alone and from ancient Carthage, but from Asia Minor, Syria, Constantinople, with whatever came with the Arabs from Persia and Mesopotamia, the culture of Spain was derived, and this fusion produced a rich and splendid civilization, which has left a priceless legacy.

In this volume, by the Professor of History of Art at Bryn Mawr, there is given an inquiry into such of the churches antedating the beginning of the Romanesque period as yet remain in Spain. Churches, convents, and monasteries lined the roads which traversed southern France and northern Spain, leading to the great pilgrimage shrines, and popular devotion provided means for the erection and adornment of buildings in accordance with the best taste of the day. For purposes of study, these churches are divided into three groups in order of time: (1) Those which survive from the time of the Visigothic monarchy; (2) Those built at the time of the reconquest by the Asturian kings; (3) Mazarabic churches built during the ninth, tenth and eleventh centuries. The work, which is quite as much historical and literary as architectural, is an important contribution to a department of study which during the last few years has attracted students, and not the least valuable details of the work are its excellent documentation and its complete bibliography, which are calculated to encourage study.

Books Received

House & Garden's Second Book of Houses. $4. *The Condé Nast Publications.*

Masterpieces of Spanish Architecture. $6. *Pencil Points Press, Inc.*

Provincial Houses in Spain. *By Arthur Byne and Mildred Stapley.* $25. *William Helburn, Inc.*

Modern Swedish Architecture. *By Hakon Ahlberg.* $25. *Charles Scribner's Sons.*

Forestry Almanac. $2. *American Tree Assn., Washington.*

Monograph of the William K. Vanderbilt House. *Written and Published by John V. Van Pelt.*

Masters in Architecture: Soane. *By H. J. Birnstingl.* $2.50 *Charles Scribner's Sons.*

French Provincial Architecture. *By Philip Lippincott Goodwin and Henry Oothout Milliken.* $20. *Charles Scribner's Sons.*

Architectural Construction; *Volume* 1. *By Walter C. Voss and Ralph C. Henry.* $20 *Net. John Wiley & Sons, Inc.*

Houses & Gardens by Sir Edwin Lutyens. *By Sir Lawrence Weaver.* $25. *Charles Scribner's Sons.*

The House that Love Built. *By W. Francklyn Paris.* $3.75 *Net. The Haddon Press.*

English Furniture at a Glance. *By Charles H. Hayward.* $2.50. *G. P. Putnam's Sons.*

English Architecture at a Glance. *By Frederick Chatterton.* $1.75. *G. P. Putnam's Sons.*

"CHURCH BUILDING"—*By Ralph Adams Cram*

(A NEW AND REVISED EDITION)

THE improvement which has accompanied the progress of American architecture during recent years has been no more marked in any department than in that of an ecclesiastical nature. This has been due primarily to the rise of a few architects who by travel and study have acquired much of the point of view from which worked the builders of the beautiful structures which during the fourteenth century and the fifteenth were being built over all of Europe.

These architects have closely studied the churches, chapels, convents and other similar buildings in England, France, Spain and elsewhere, and the result has been a number of American churches of an excellence so marked that they have influenced ecclesiastical architecture in general and have led a distinct advance toward a vastly better standard. This improvement has not been exclusively in the matter of design, for plans of older buildings have been adapted to present-day needs, and old forms have been applied to purposes which are wholly new.

THE appearance of a new and revised edition of a work which is by far the best in its field records this progress. Mr. Cram, being perhaps the leader among the architects who have led this advance, is himself the one individual best qualified to write regarding the betterment of ecclesiastical architecture. The editions of this work of 1900 and 1914, which have for some time been out of print, have now been considerably revised and much entirely new matter has been added, which in view of the change which has come over ecclesiastical building of every nature is both significant and helpful.

Illustrations used in this new edition of "Church Building" show the best of recent work—views of churches and chapels large and small, in town and country, buildings rich in material and design and others plain to the point of severity, with the sole ornament in the use of fine proportions and correct lines. Part of the work deals with the accessories of the churches and their worship.

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CONTENTS *for* JUNE 1925

MOTION PICTURE THEATER REFERENCE NUMBER

PLATE ILLUSTRATIONS — Architect — Plate

Forum Theater, Los Angeles .... *Edward J. Borgmeyer* 61, 62
Allen Theater, Cleveland .... *C. Howard Crane* 63, 64
James Theater, Columbus, O. ...*C. Howard Crane and Kenneth Franzheim* 65, 66
Circle Playhouse, Annapolis .... *Henry P. Hopkins* 67, 68
Fort Armstrong Theater, Rock Island, Ill. ...*Cervin & Horn; W. T. Braun, Associated* 69, 70
Cameo Theater, New York .... *Eugene De Rosa* 71, 72
Lafayette Theater, Suffern, N. Y. .... *Eugene De Rosa* 73, 74
Chicago Theater, Chicago .... *C. W. & George L. Rapp* 75
Central Square Theater, Cambridge, Mass. .... *Mowll & Rand* 76
Capitol Theater, Allston, Mass. .... *Mowll & Rand* 77
Roosevelt Theater, Chicago ...*C. Howard Crane and Kenneth Franzheim* 78, 79
Capitol Theater, Chicago .... *John Eberson* 80
Al. Ringling Memorial Theater, Baraboo, Wis. .... *C. W. & George L. Rapp* 81
Broadway Theater, South Boston .... *Blackall, Clapp & Whittemore* 82
St. George Theater, Framingham, Mass. .... *Blackall, Clapp & Whittemore* 83
Palace Theater, Lawrence, Mass. .... *Blackall, Clapp & Whittemore* 84
Tivoli Theater, Chicago .... *C. W. & George L. Rapp* 85
Capitol Theater, Davenport, Ia. .... *C. W. & George L. Rapp* 86
Golden Gate Theater, San Francisco .... *G. Albert Lansburgh* 87, 88
Granada Theater, San Francisco .... *Alfred Henry Jacobs* 89, 90
Curran Theater, San Francisco .... *Alfred Henry Jacobs* 91
Winema Theater, Scotia, Cal. .... *Alfred Henry Jacobs* 92

LETTERPRESS — Author — Page

Cover Design: "A Motion Picture Theater" ......*Drawn by Howard Moïse*
Editor's Forum 53
Roosevelt Theater, Chicago *From a Drawing by Hugh Ferriss*.........*Frontispiece*

LETTERPRESS (Concluded) — Author — Page

What the Public Wants in the Picture Theater .... *Samuel L. Rothafel* 361
Present Tendencies in Design of Theater Facades .... *Kenneth Franzheim* 365
Theater Entrances and Lobbies .... *E. C. A. Bullock* 369
Capitol Theater, Chicago .... *John Eberson, Architect* 373
The Work of Thomas W. Lamb, Architect 377
Some Observations on Motion Picture Theaters .... *C. Howard Crane* 381
Planning the Motion Picture Theater.... 385
The Question of Lighting .... *I. J. Lichter* 389
Use of Indian Motifs in Theater Decoration .... *Mary A. Rolfe* 391
Ventilating and Cooling Motion Picture Theaters .... *D. D. Kimball* 393
Eastman Theater, Rochester............ 399
Piccadilly Theater, New York........... 400
Organ Installations in Theaters .... *Robert E. Hall* 401
The Design of Theater Projection Rooms .... *J. H. Kurlander* 403
Some Structural Features of Theaters .... *Henry Ahrens* 407
Stage Layout and Equipment .... *Edward H. Kearney* 409
The Small Motion Picture Theater .... *J. H. Phillips* 411
Babylon Theater, Babylon, N. Y. .... *J. H. Phillips, Architect* 417
Bellevue Theater, Upper Montclair, N. J. .... *J. H. Phillips, Architect* 419
The Playhouse, New Canaan, Conn. .....*Davis, McGrath & Kiessling, Architects* 421
Rye Theater, Rye, N. Y. ....*Harry Leslie Walker, Architect* 423
Theater at Pinehurst, N. C. ....*Aymar Embury II, Architect* 425
Bay View Theater, San Francisco *Charles F. Strothoff, Architect; G. F. Stahlberg, Associated* 427
Mante's Theater, Irwin, Pa. ....*Douglas O. Ellington, Architect* 429
Medford Theater, Medford, Mass. ....*M. A. Dyer, Architect* 431

PARKER MORSE HOOPER, Editor

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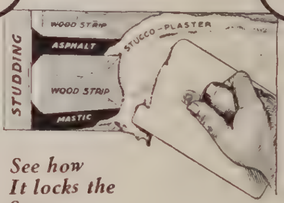

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THE EDITOR'S FORUM

VILLAGE PLANNING

"RURAL PLANNING" is the title of an interesting bulletin just issued by the United States Department of Agriculture. A preface to the bulletin says: "City planning for convenience, efficiency, health and social well being has become a pressing public problem, especially since the rapid increase in urban population. But what of the millions who live in our thousands of villages? What are they doing to make their living and social conditions more healthful, comfortable, attractive and effective, and to provide for population increase? Villages do not always have the benefit of a detailed town plan prepared by experts, but rural community effort has already accomplished notable results in many instances. Why should villages be planned? Who should initiate the planning? Where should responsibility for action and accomplishment lie? How can coöperation effect desirable results? Should plans include the future? What will they cost, how can they be financed, and what difficulties will be encountered?"

This bulletin is an attempt to answer these questions by giving instances of what has been done in numerous villages in many states, as well as to indicate the importance and the facility of such planning.

AN AWARD IN PHILADELPHIA

THE medal of honor given by the Societe des Architectes Diplomes par le Gouvernement Francais to laymen, for distinguished service in the advancement of art and architecture, was awarded this year to Eli Kirk Price of Philadelphia for his activities in connection with the planning of the Philadelphia Parkway and the new Philadelphia Museum, and for work on the general development and beautifying of the city. The presentation took place at a dinner at the Philadelphia Club, on the evening of May 20, in the presence of a distinguished gathering. Clarence Zantzinger presided, the medal was presented by Chester H. Aldrich, President of the American Group of the Societe des Architectes Diplomes par le Gouvernement, and addresses were made by George Wharton Pepper, by Provost Penniman of the University of Pennsylvania, by Ambassador Roland S. Morris and by M. S. Medary.

THE SMALL CITY STADIUM

FROM the *American City Magazine* there has been reprinted for general distribution an article on "A Stadium in the City of the Average," by Daniel N. Casey, of the Harrisburg Chamber of Commerce. This brochure gives a study of the growth of the stadium idea, an analysis of the stadium's plan and practicability, and something regarding its feasibility in small cities or those of moderate size. That a stadium is by no means beyond the reach of small cities is proved by the existence of stadiums in East Orange, N. J., Haverhill, Mass., and Parkersburg.

ARCHITECTS AID LOUVAIN

DURING the progress of the Exposition of Architecture and Allied Arts, a collection of books on architecture was presented to the library of the University of Louvain. The gift was presented by D. Everett Waid, in behalf of the American Institute of Architects, and was accepted by Joseph F. Stillemans, representing the University.

A TREE SURGEON IN CONGRESS

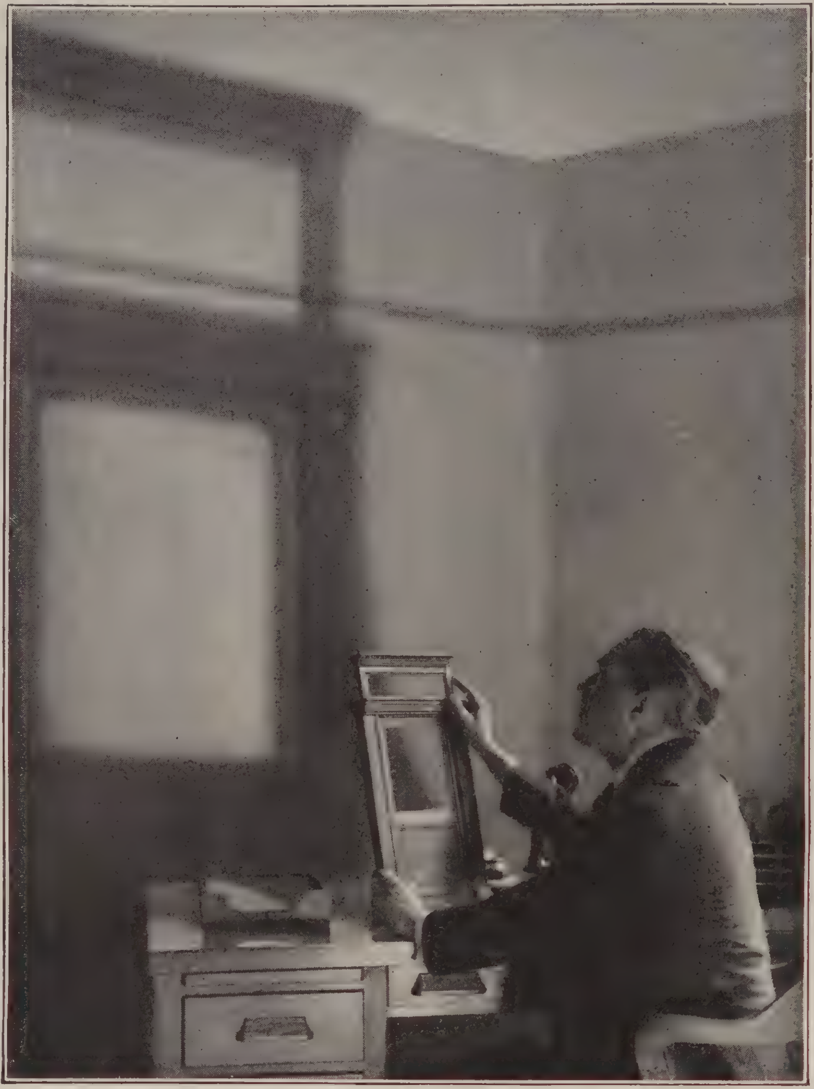
IN the *Congressional Record* for January 29, 1925, there is printed in full the address given in the House of Representatives by Hon. Martin L. Davey, Member of Congress from the 14th District of Ohio, on "Tree Surgery." Mr. Davey is perhaps better known as a tree surgeon than as a congressman, and his address will be of interest to architects, landscape architects and planners of towns and cities. Much of the subject matter deals with the questions of plant food, soil exhaustion, decreasing productivity, abandoned farms and adequate food supply, and the address was given in connection with the Muscle Shoals debate during the past few months.

A PORTRAIT IN RELIEF

THE American Institute of Architects announces its acceptance of a marble relief portrait of the late Richard Morris Hunt, the third president of the Institute. The gift, which comes from Mrs. Richard Sharp Smith, whose husband was associated with Mr. Hunt in his notable work at Biltmore, N. C., possesses particular interest as having been made by Karl Bitter, the well known sculptor.

THE NEW YORK ARCHITECTURAL LEAGUE

AT a recent meeting of the Architectural League of New York, Donn Barber was elected president in succession to Harvey Wiley Corbett, and as vice-presidents there were elected Charles Keck, Ezra Winter, James L. Greenleaf and Stepan de Kosenko. To Charles H. Green was awarded the League's gold medal in recognition of his services as a manager of expositions, and to Howard Greenley, a former president of the League, was given a parchment certificate regarding his work in arranging the Exposition of Architecture and Allied Arts.



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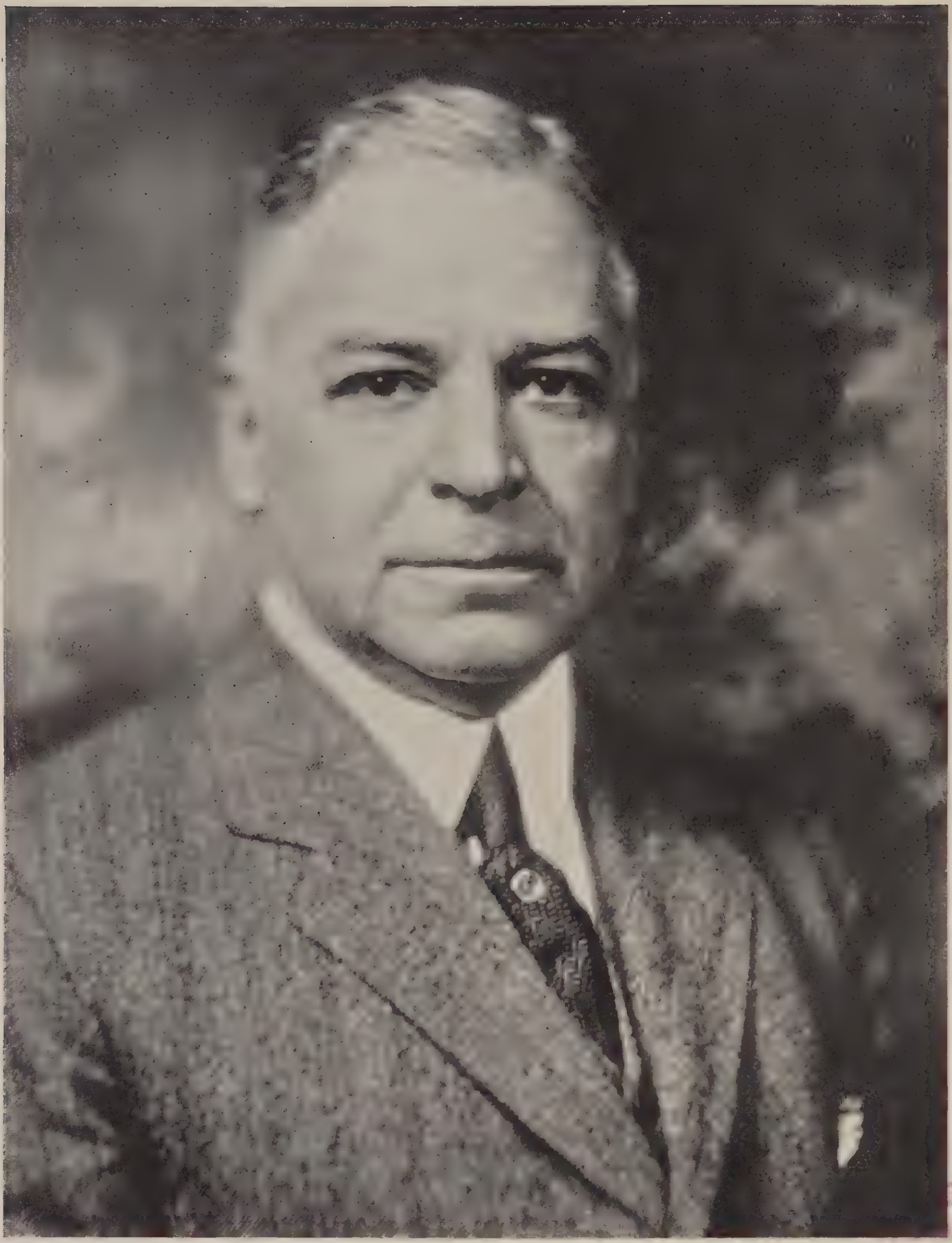

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Donn Barber

1871-1925

TWO months ago the vigorous personality of Donn Barber suggested no thought of the numbing shock that was to come to his family and friends in his death, at the height of the development of his marked abilities. A brief but fatal illness came upon him, and it was characteristic of him that, refusing to recognize the peril he was in, he maintained a cheerful, joyous courage in all his last contacts, and at the end passed away in his sleep.

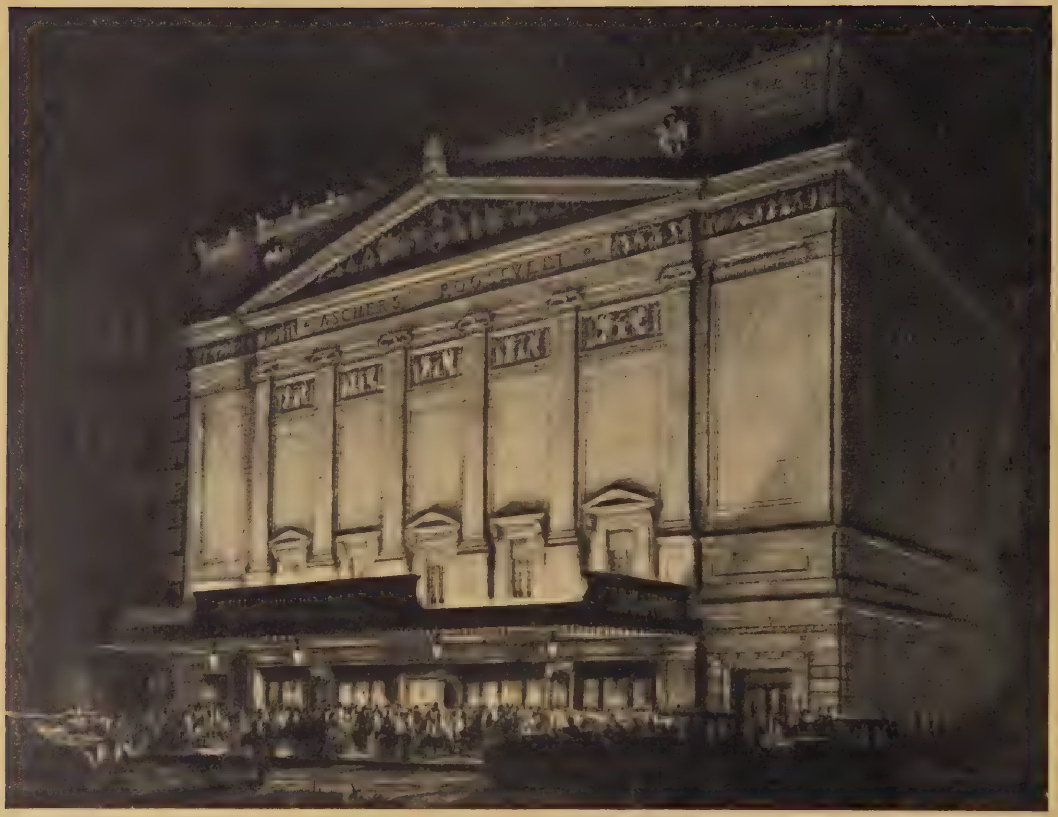
He was a man of unusually clear vision, eager and intense in all things, and an indefatigable worker. Of an affectionate, generous and democratic nature, with inherited talent for music and art which he developed by intelligent application, it is no wonder that his going has left an emptiness in the hearts of his friends that cannot be filled. He was thoroughly informed and had a genius for news. Whenever anything had to be verified, or the details of some old occurrence brought to light, Barber was always appealed to. This characteristic, with his spontaneous wit and ease in conversation, made him a delightful and entertaining companion. Happy by nature, delighting in his family, his friends, and his work, he was proud of it all, and shared his happiness with his neighbor. He faced life with confidence, met difficulties and sorrow without flinching, and was always ready to direct his talents into channels that benefited others, particularly the younger men, in whose education he took an important part through the "Atelier Donn Barber," which he established and maintained for many years. He was preëminently able in that most important and difficult phase of the work of an architect,—the study and production of a simple, logical plan. His talent in design was not static,—he went on from year to year, and those who knew and loved him take comfort in the knowledge that he contributed in a marked degree to the progress of the art he loved, and to the scholarly advance which American architecture has made in recent years. His name will be held in affectionate regard, and his influence will live on.

BENJAMIN W. MORRIS

DONN BARBER was born in Washington, October 19, 1871, the son of Charles G. and Georgiana (Williams) Barber. He was graduated from Yale University with the degree of Ph. B., in 1893; following this he took a special course for one year (1893-94) at the School of Architecture, Columbia College, after which he spent four years in Paris at the Ecole des Beaux Arts, from which he was graduated in 1898. In November of the following year he was married, in Louisville, to Miss Elsie Yandell, who, together with four children, survives him.

Practical training, after graduation from the Beaux Arts, he received in the offices of Lord & Hewlett, Cass Gilbert and Carrere & Hastings, establishing his own practice of architecture in 1900. Among the many splendid buildings designed by him are the New York Cotton Exchange, the National Park Bank, Lotus Club, Institute of Musical Art, National Headquarters and Central Branch Headquarters, Y. W. C. A., Connecticut State Library, and buildings for the Travelers' Insurance Company at Hartford, while shortly before his death the finishing touches were put to the plans of what he regarded as his crowning achievement, the Broadway Temple, New York, the construction of which is about to be begun.

Mr. Barber gave in generous, unstinted measure his influence and his efforts to furthering any undertaking which tended to advance the material interests of his profession. No one was more active than he in the organization and carrying to a successful presentation of the recently held Exposition of Architecture and Allied Arts, and it is one of the ironies of fate that he was unable to personally participate in the gatherings which meant so much to its success. He was formerly President of the Society of Beaux Arts Architects, and was President of the Architectural League of New York, at the time of his death, which occurred at his home, 125 East Seventy-fourth Street, New York, in the early morning of Friday, May 29. Following funeral services in New York on Monday; June 1, he was buried in the Sleepy Hollow Cemetery at Tarrytown.



ROOSEVELT THEATER, CHICAGO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS

From a Crayon Drawing by Hugh Ferriss.

The
ARCHITECTURAL
FORUM

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What the Public Wants in the Picture Theater

By SAMUEL L. ROTHAFEL ("Roxy")

Proprietor, Capitol Theater, New York

PEOPLE want primarily to feel that it is *their* theater. Their first contact with the house is by way of the cashier, the doorman, the house manager and the ushers who conduct them to their seats. One can readily realize, therefore, how important it is that this first impression convey all that the management desires in the way of courtesy and service. To this end the house staff should be under strict training, of almost a military character. The members should be drilled regularly, so that their movements and demeanor may be smart, snappy and precise. They should be taught the importance of personal cleanliness, so that their uniforms and general appearance at all times are immaculate. They should be given "institutional" talks which instill in them a sincere and wholesome interest in their work and a pride in the institution which cannot help but be reflected in the attitude that "the patron is always right."

One cannot over-emphasize the importance of "atmosphere." The Capitol Theater is fortunate in having an inspiring and beautiful interior, one which, on being entered, immediately fills patrons with interest and expectation. Fresh flowers are placed daily in the lobbies and promenades of the theater, on which one item alone are spent several thousand dollars a year. Superficially, this may seem like extravagance, but it is one of the ways in which we have helped to establish the atmosphere we desire to have in the theater. By creating this atmosphere, and making the patron feel that he is our special guest and that nothing for his comfort and convenience has been overlooked, we have won the first battle; after this everything is much easier.

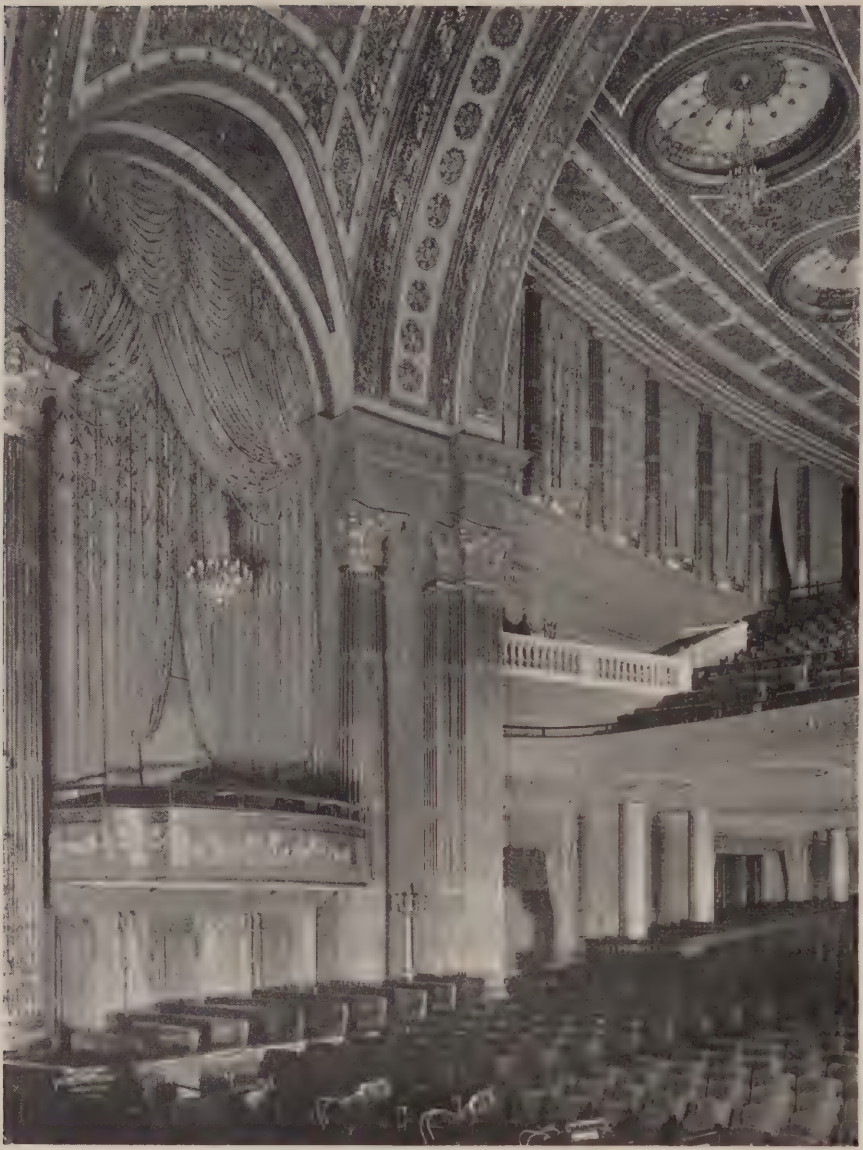
I have said that the patron likes to feel that this is *his* theater. To that end we are guided in our advertising and showmanship by principles of sincerity and good faith. A policy of dignity, honesty and good taste, consistently adhered to, cannot help but reap its harvest in securing us the good will of our patrons. We are honest and sincere with them, and in return we shall have their confidence.

Behind the theater there should be an ideal, a living idea. Behind the programs there should likewise be an animate idea. It is that intangible something, that moving spirit, that makes the theater a living factor of local activities and a community center. One of the most amazing and awe-inspiring things I have ever felt is to be in the Capitol on a Sunday evening, when the house is crowded to the doors. Every seat in the orchestra and balcony is filled, with rows and rows of patient "standees" in the rear. And these thousands of people will listen, breathless, eager-eyed, and with all their senses focused on the stage, while the big orchestra of 75 fills the house with the strains of an overture of Wagner. This is their program, conceived especially for them, somewhere close to the heart and yet not far from the mind. They love it and are proud of it and throng the house to hear it.

I should consider the success of any theater incomplete without the *esprit de corps* of the organization. There are over 350 persons connected with the active operation of the Capitol. The list includes people performing a wide variety of duties: members of the staff, heads of departments, artists, musicians, projectionists, electricians, property men, carpenters, painters, wardrobe women, engineers, managers, attendants, ushers, pages, cashiers, clerks, porters, cleaners and watchmen, while every individual from the highest to the lowest is inspired by the spirit of teamwork—the subordinating of personal prominence to the efficiency and welfare of the whole organization and to its upbuilding.

We should never have been able to create the effects we do, to conduct the experiments in projection, lighting and staging which bring us a step higher in the development of motion picture entertainment, if it were not for the sympathy, enthusiasm and devotion of each member of the organization. I think I may say with pardonable pride that they have never stopped at anything,—that no idea which ever emanated from the combined imaginations of the staff has ever stumped the people backstage who were presently called upon to carry it out.

Each week in the year has a psychology of its own; each week must be approached and treated in a different manner, taking into consideration the



Detail, The Capitol Theater, New York
Thomas W. Lamb, Architect

season of the year, the entertainment being offered, and any particular significance attached to it. But certain general principles are applicable at all times. First of all, the public likes to permit its imagination to have full play. Its intelligence must not be under-rated. It must be given credit for as much discrimination as that of the exhibitor who offers his entertainment to the public. One must avoid striking false notes, and should strive to get real human-ness into the programs,—and it can be done.

I have great faith in the intelligence and the æsthetic appreciation of American audiences. I believe that they are ready for the best that can be offered them in motion pictures and music. When we undertook to have the Capitol Grand Orchestra play Richard Strauss' symphonic poem *Ein Heldenleben,* several years ago, we embarked on a daring adventure in the field of popular entertainment. The popularity and appeal of the best symphonic music had already been proved by the thousands of regular patrons who come to the Capitol to hear the orchestra and its musical offerings. Liszt, Tschaikowsky, Beethoven, Wagner — work of each of these composers had found a permanent place in our programs. Even Strauss' *Till Eulenspiegel,* played in this theater one spring, had been sympathetically received. But Strauss' *Heldenleben* presented an altogether different problem. Here is a magnificent example of iconoclastic modern music, a work which has provoked as much discussion as a Wagner opera; here is a demonstration of Strauss' unparalleled mastery of orchestral devices and the highest development of thematic composition, tonal coloring and dramatic beauty. The overwhelming success of its reception by our audiences was the most gratifying and encouraging element in the performance of this composition, and it justified our belief that our audiences are the finest in the world and capable of rising to the greatest heights of æsthetic appreciation which can be inspired.

We do not place ourselves on a lofty pedestal and from the exalted altitude of our position decide that the public wants this, that or the other thing. We make no attempt to "please the public," a phrase which is easily bandied about, for the simple reason that we do not presume to know what it is the public really does want. But we do know one thing. We try to keep faith with our public. We try to create a program based on the fundamentals of good taste, honesty and sincerity, and within the bounds of average intelligence. We have a critical standard of our own; we try, first of all, to please ourselves, and we are our own severest critics. The old-time showman, wearing a high silk hat and with a red carnation in his buttonhole, who placed his hand on his chest and shouted, "Give the public what it wants!" belongs to a long forgotten age.

I agree with the contention that "the picture is the thing." Of course the picture is important, and we could not do without it; but what we have tried to do is to build around it an atmospheric program that is colorful, entertaining and interesting. This type of program, with its ballets, musical presentations, stage settings and lighting effects, calculated to form a series of pictures sometimes contrasting and sometimes gracefully merging into one another, was originated by ourselves. It seems to please our patrons, and so we have no complaint to make.

Now as to the music. We have never advocated in this type of entertainment the presentation of operatic arias sung in foreign languages, which few enjoy and even fewer understand. We have tried to eliminate hokum and insincerities from our programs. By the same token we have refrained from presenting jazz numbers, which in themselves might be popular and successful, but which reviewed in the program in its entirety would be a jarring note in the harmonious effect of the whole. The music, in my opinion, should do more than merely accompany the picture. Its function is to *interpret* the action and character of the picture, to lift it up and carry it over the flat dimensions of the screen. It is interpretative music that supplies the body and foundation of the presentation. The music should not obtrude itself upon the patron. If it is interpretative in the full meaning of the word, it will become so integral a part of the picture that the lines of confluence will be hardly distinguishable, and such music we try to present.

Grand Foyer, Capitol Theater, New York
Thomas W. Lamb, Architect

The lighting, too, is most important. There is no miracle about it, no magic, although the gorgeous ensembles of color simulate the effect created by a magician's wand. Neither is it an indiscriminate or haphazard throwing together of colors, since behind each lighting effect there is an idea, consistently conceived and executed. Elemental passions and emotions have their counterparts in the primary colors—red, blue and green. They are the colors which best express the spirit of the Latin countries —Italy and Spain—and they are the colors which we use as the principal motifs in lighting such orchestral numbers as *Capriccio Italien* and *Capriccio Espagnol.* Russian music also deals with the elemental nature of the people. Tschaikowsky's music has its roots deep in the national spirit of the Russian people; sorrow, suffering, privation, injustice are expressed by the use of primary colors. Pastels, on the other hand, represent the abstraction of the idealistic. In lighting an overture such as that of *Mignon,* we keep in mind the nature of the character portrayed, and the lighting should consistently describe that character. In lighting *La Boheme,* again, the important thing is the theme of the music —the gay, carefree atmosphere interpreted in terms of color, for both color and music aid interpretation.

It is my belief that the motion picture theater of tomorrow will aspire in its artistic endeavors to reach the standard of grand opera. We shall see theaters equipped and constructed along different lines, generally on one floor, and with stages of much greater proportions than those we now have. The decorative effects will be of a neutral character and free from ornamental properties or design. They will be created by light, thereby creating atmosphere appropriate for each individual production. Vast progress will be made in many ways.

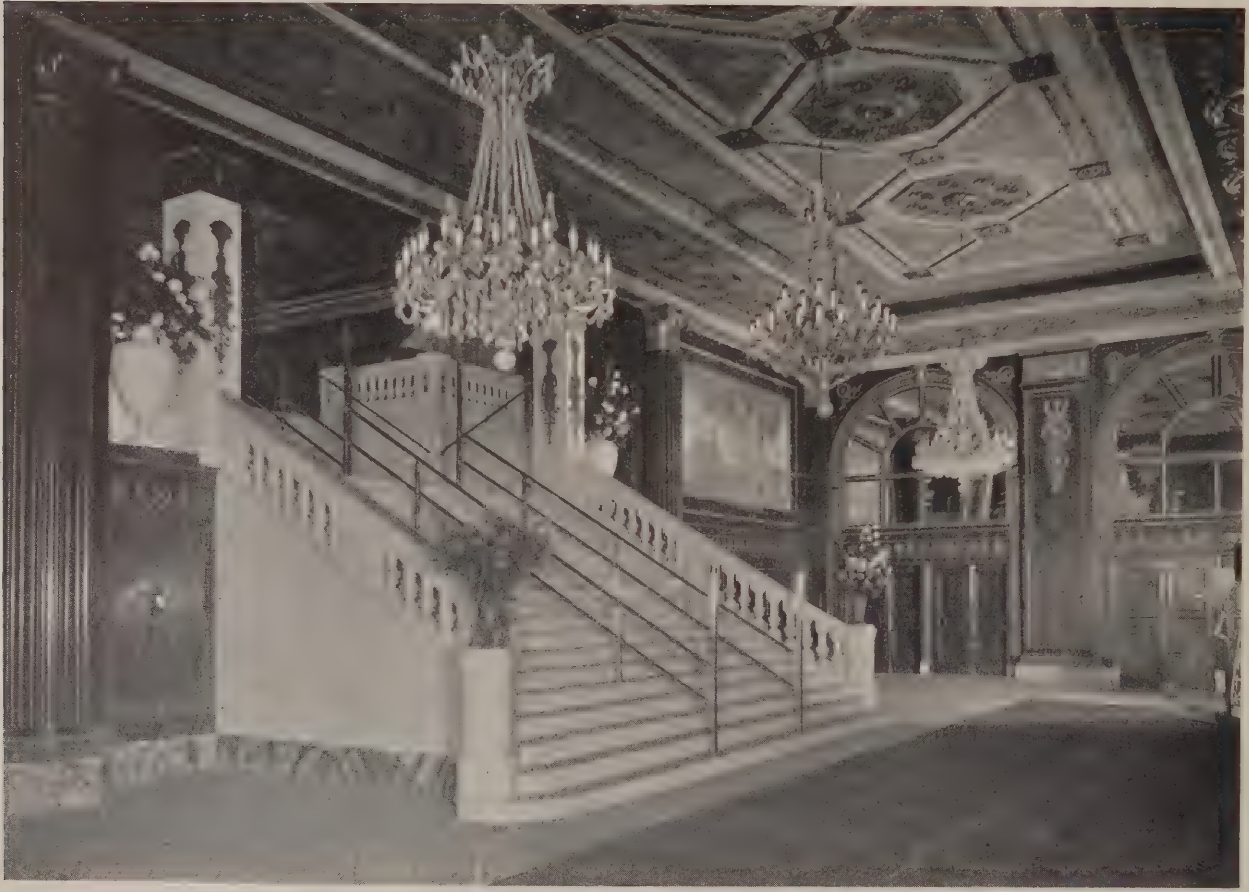
Development of the present systems of lighting, I am convinced, will be the greatest stride made during the next few years. In this respect, too, the theater of tomorrow will be different. Projection of light from various parts of the house upon highly sensitized screens will be utilized to create effects. Color will play a most important part, and the control will be in the hands of a single operator, stationed somewhere in the orchestra, who will play upon a keyboard similar to that of the piano. By this means shades of color and intensities of light will be varied to suit the mood of the action. By combinations of the primary colors, pictures shown upon the screen will be suitably presented, while the music from a symphony orchestra, synchronizing with the acting, will aid in making a single impression upon the spectator.

Acoustics no longer present a problem, since the amplification system, with which we are now experimenting, will carry the voice and will send it perfectly almost any distance within reason, and certainly a distance greater than could be found in any theater. We have now installed a system in the Capitol Theater which permits the director to sit in a chair and speak in a natural tone of voice, even in a whisper, so that he can be heard in any corner of the theater—the booth, more than 200 feet away from him, and in any corner of the stage—by the conductor and all those concerned.

The orchestras of tomorrow will be quite different from those of today. They will be smaller for theater work, with many new instruments; but each instrument will be so amplified that the orchestra will probably exceed in "color" and volume of tone an orchestra many times its size today.

For projection we have now developed the high intensity arc, a special filter, and a newly-designed shutter. Tomorrow such apparatus will be so controlled automatically that it will require the most highly trained operators to direct the showing of synchronized, sensitized pictures. Today motion pictures do not form a part of art; they are the result of the fusion of varied abilities. But shown in the future with light, color, music, even scent (we have attempted that, too!), pictures will afford the highest expression of art that we shall know. I hope that I shall live to see that day!

We are working slowly; we are dreaming wonderful things; we are visualizing marvelous projects. We shall develop many auxiliary types of motion pictures—educational and perhaps industrial—in connection with radio and with medical science. The work of the past is but the steppingstone to something much finer and better in the future, and the development in the picture industry thus far is but an indication of what is to come.



Balcony Stairs and Entrance Foyer, Capitol Theater, New York
Thomas W. Lamb, Architect

Present Tendencies in the Design of Theater Facades

By KENNETH FRANZHEIM, *Architect, New York*

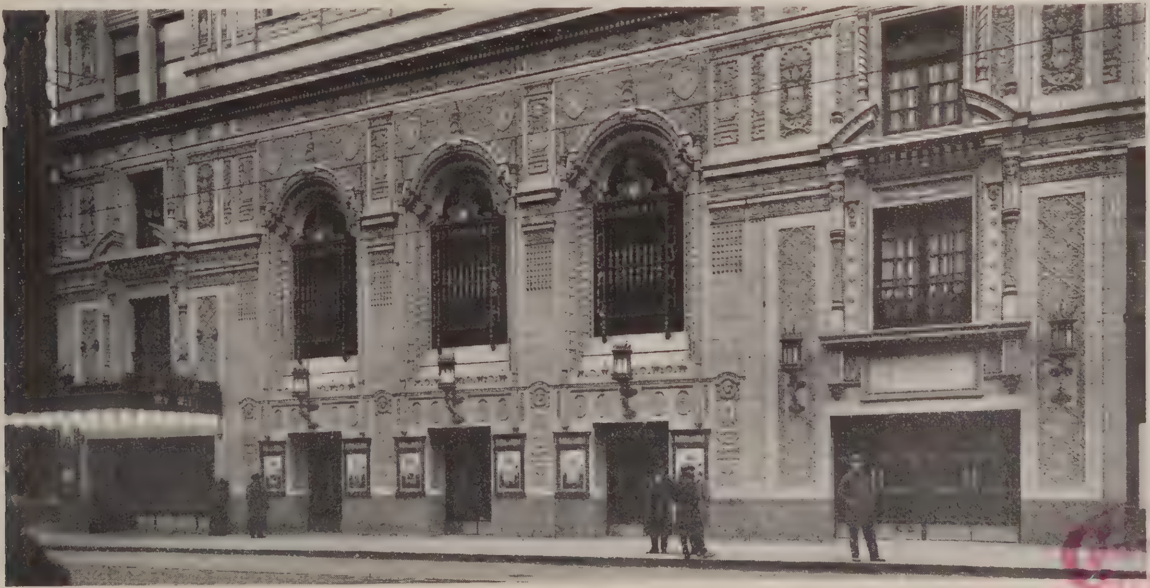
WITHIN the past few years more and more attention has been given to the exterior design of theater buildings in America. This improvement is much more than a reflection of the general improvement of American taste in matters of art during the past decade; it is also the result of a close study of human psychology by theater owners. Today the play is not solely "the thing." The "show" is now a much broader problem; its importance is expressed throughout every corner of the building, and the facade is coming in for a larger measure of thought and study at the architect's hands.

Nineteenth century opera houses and theaters stand today as silent reminders of the decadence of American taste in that period. With the exception of the Madison Square Garden, with its splendid theater, now being demolished, there was nothing created before 1900 that is worthy of consideration as a work of art. Occasionally considerable sums of money were squandered on garish interiors, but little attention was ever paid to the houses' outward beauty.

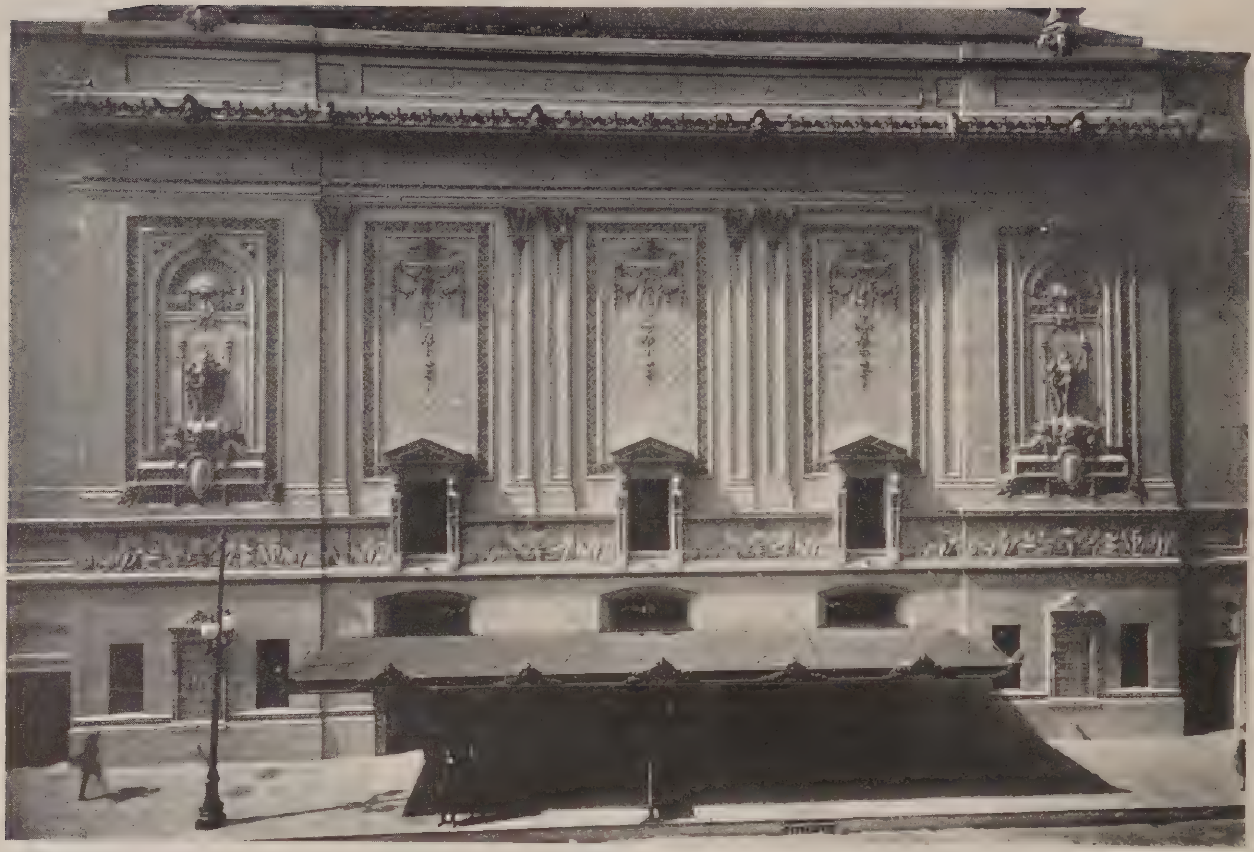
As the public today is demanding alluring facades and attractive appointments, even to the curb, architects are hastening to respond to this demand. However, up to the present time, but few buildings designed as motion picture theaters have been built worthy to be regarded as outstanding examples of architecture. There have been some semi-public motion picture theaters built, such as the Eastman Theater in Rochester, that are thoroughly successful, and there are a number of public picture houses that warrant considerable applause; but a real achievement in the commercial motion picture field is still lacking. The Grauman Theater in Hollywood is a step forward in this direction, although it is difficult to reconcile a gaiety of architectural expression with the style of ancient Greece. It is at once too monumental and too austerely solemn. The Rivoli in New York and the Roosevelt in Chicago are worthy of some attention, but are lacking in many refinements. The modern commercial problem is to beguile the public with pleasurable expectation by creating facades that are at once exalting and inviting, yet free from garishness and cheap ostentation. In individual theater buildings the opportunity is of course much greater than in theaters constructed in connection with large office buildings. In practically all of the latter, the problem of expressing the theater entrance properly has been completely ignored. Generally the effect has been to "punch in" two or three store fronts, hang up a marquee and electric sign, and then to request the public to imagine the rest.

Considerable progress has, however, been made in the handling of electric signs, marquees, poster boards, and other exterior accessories. Electric signs that were at one time designed by tinsmiths are now carefully studied as a part of the architectural composition, and are now anchored to the buildings with due consideration for architectural fitness. Marquees were for a long time appropriated as "brackets" for electric attraction signs, with the original purpose of sheltering the patrons often completely overlooked.

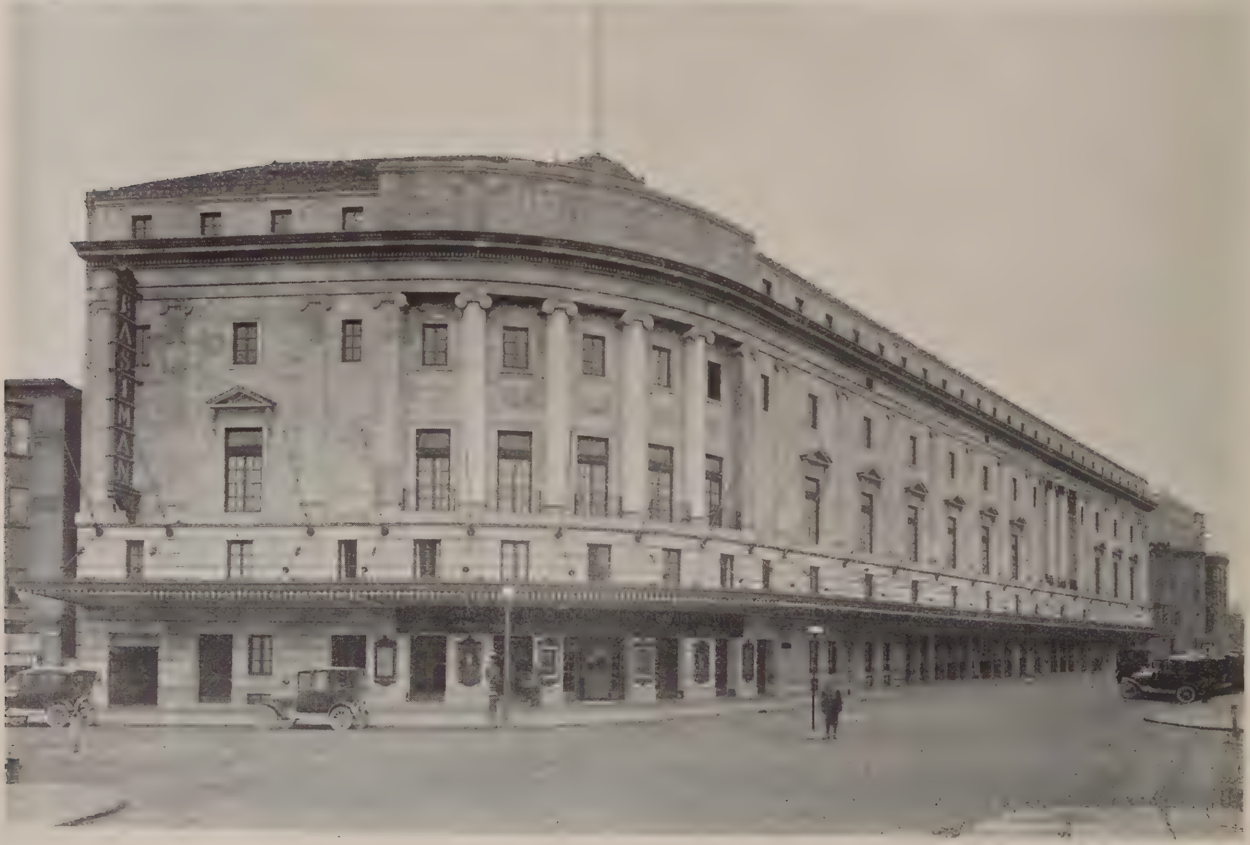
There are scores of prominent motion picture theaters now projected throughout the country, on which millions of dollars will be expended, and in which it is to be hoped the owners will see fit to encourage their architects in their desire and effort to create exteriors that comport suitably with the interiors.



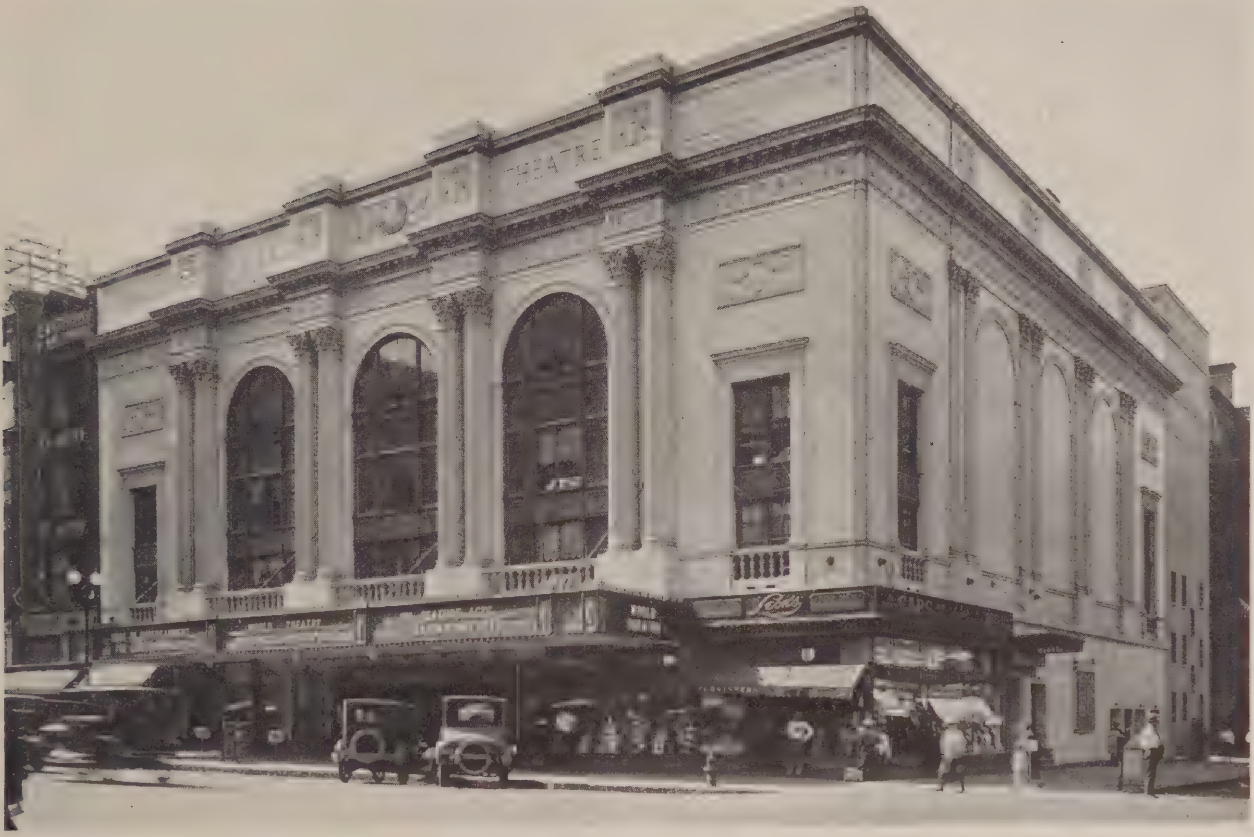
Entrance Facade, Capitol Theater, St. Paul
C. W. and George L. Rapp, Architects



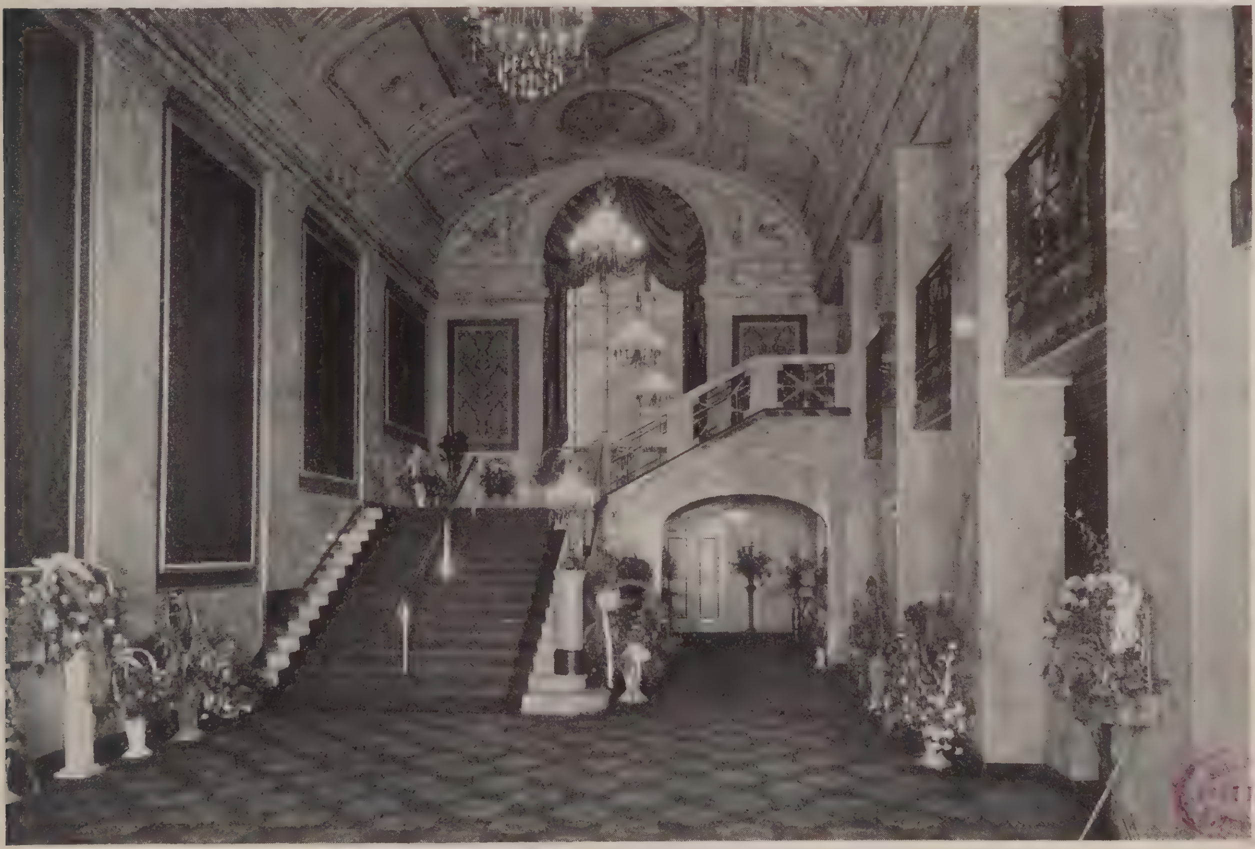
THE ORPHEUM THEATER, NEW ORLEANS
G. ALBERT LANSBURGH, ARCHITECT



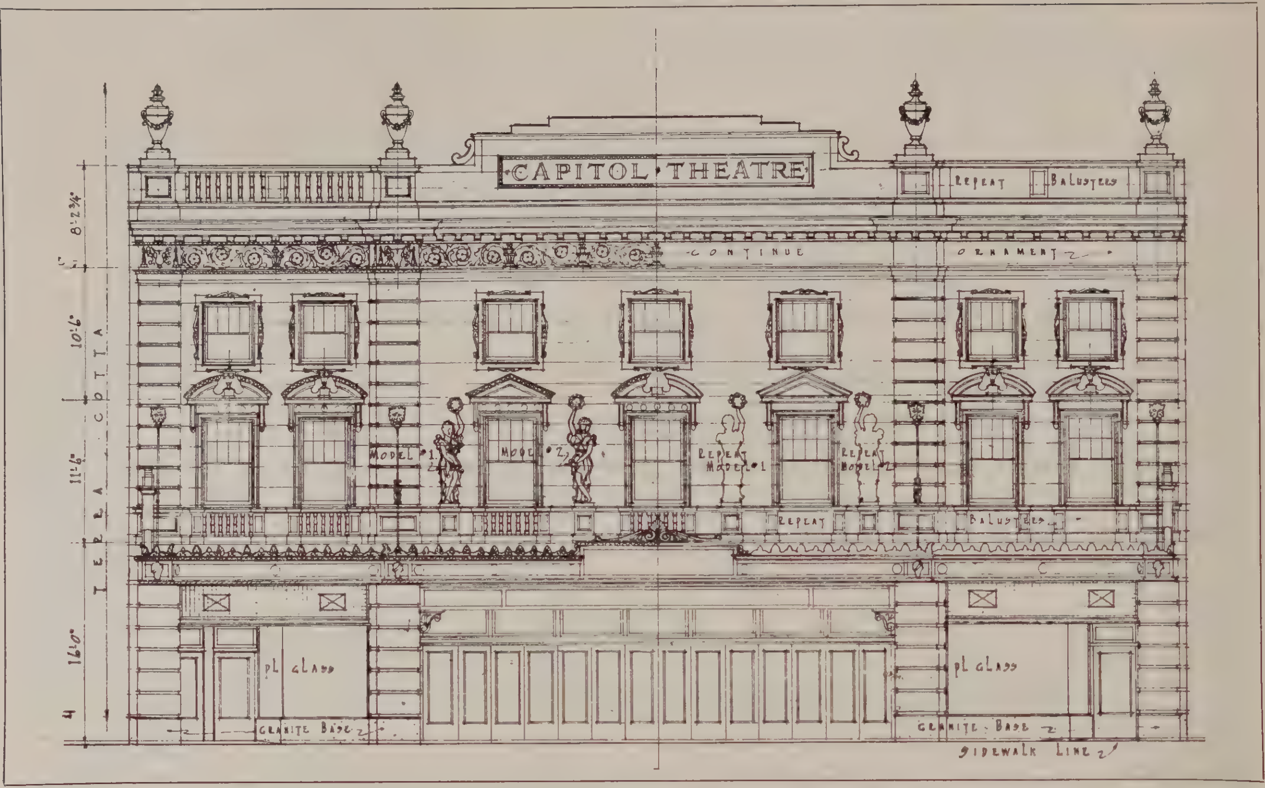
THE EASTMAN THEATER, ROCHESTER
GORDON & KAELBER, ARCHITECTS; McKIM, MEAD & WHITE, ASSOCIATE ARCHITECTS



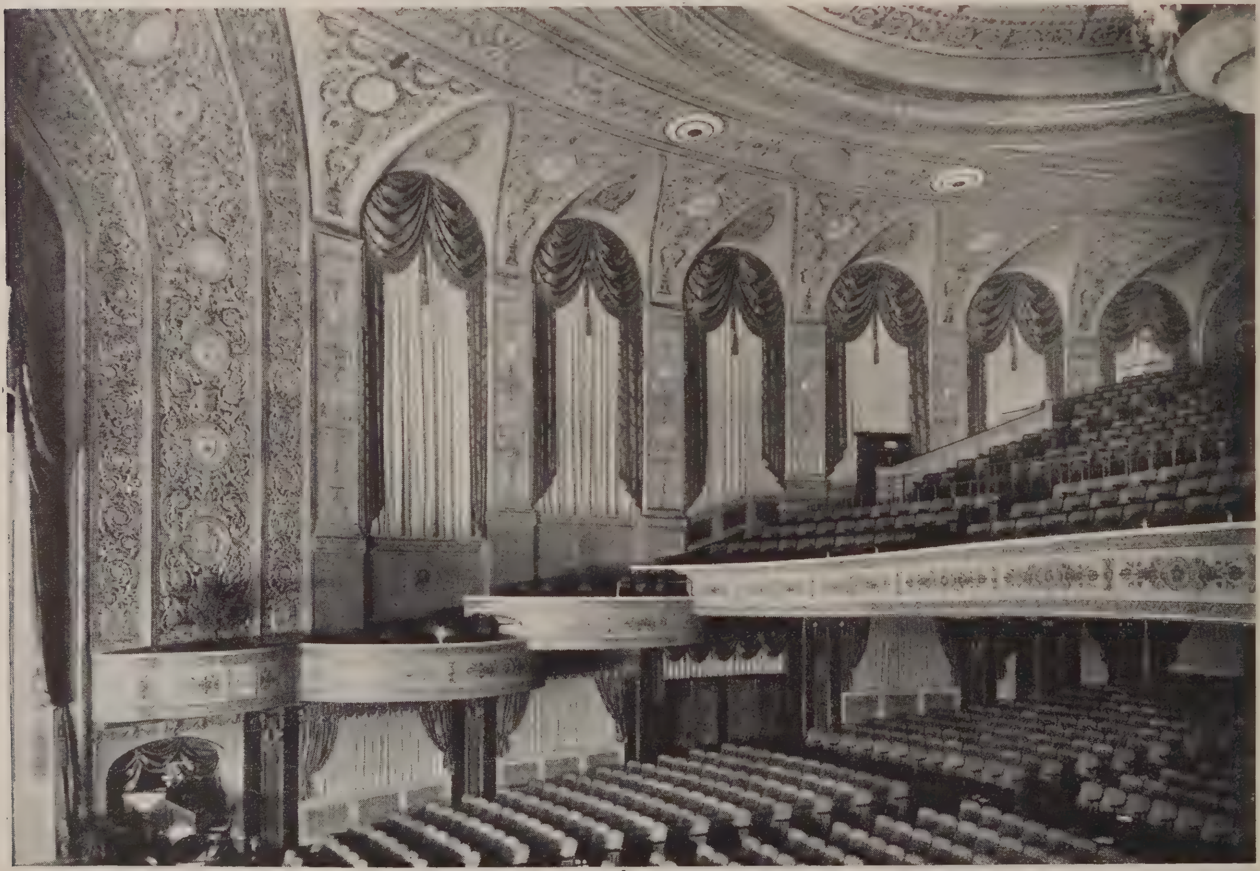
THE WORLD THEATER, OMAHA
C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



GRAND FOYER OF THE EARLE THEATER, WASHINGTON
C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



DETAIL DRAWING, FRONT ELEVATION, CAPITOL THEATER, CHICAGO
JOHN EBERSON, ARCHITECT



AUDITORIUM OF THE EARLE THEATER WASHINGTON
C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS

Theater Entrances and Lobbies

By E. C. A. BULLOCK, *Office of C. W. and George L. Rapp, Architects, Chicago*

THE people of today's hurly-burly, commercialized world go to the theater to live an hour or two in the land of romance. So it is that the sophisticated playgoer must be taken up, on the architect's magic carpet, and set down suddenly in a celestial city of gorgeous stage settings, luxurious hangings and enchanting music. The atmosphere of a king's palace must prevail to stimulate the imagination of those who come within its doors. Yes, even before the patron enters the theater, the architect must stress first impressions through one of the most important architectural problems,—entrance and lobby appeal. The successful theater architect must master the psychology of the theatergoer. He must understand the patron's love of adventure and be able to excite his spirit of romance.

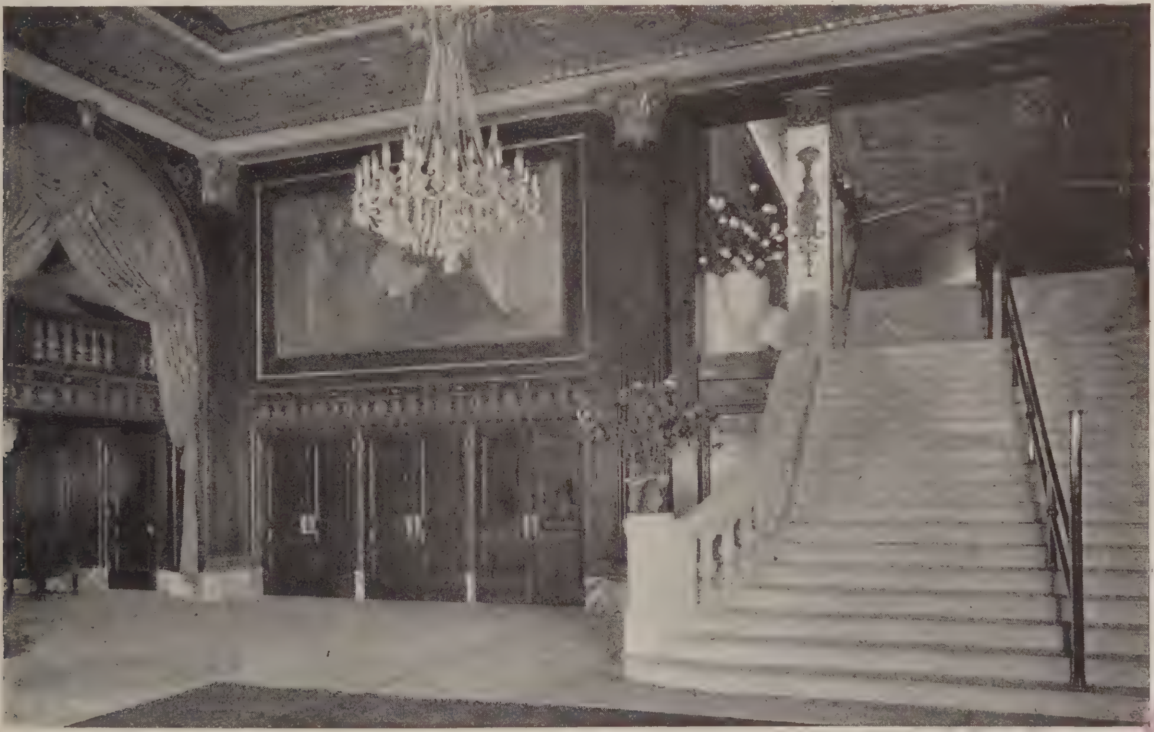
Giving first consideration to the entrance of a playhouse, an attractive theatrical appearance should be sought. An exterior design in which the curves of graceful arches predominate, but are not overdone, provides a pleasing contrast to the cold, straight and commercial lines of the usual surrounding buildings. The entrance motifs above and below the canopy, if there is one, should be made up of large and broad unobstructed openings, providing generous and alluring glimpses of the interior. With a flood of direct, indirect or outline lighting, to blaze the trail to the theater through many blocks, the entrance must be compelling, it must be inviting, and it must overshadow everything in its immediate neighborhood. It must actually be a magnet to draw the people on foot and in vehicles toward its doors.

Electric signs should be designed at the same time as the theater front, thus avoiding what has occurred in so many instances,—the obscuring entirely of a fine terra cotta front or stone exterior by huge and ugly electric signs. If it is necessary for the sake of advertising to cover the front of the building with a superabundance of signs to meet competition, the entrance should be so designed that it provides a simple background for the signs and not be a thing of beauty in itself to be covered and concealed. Sign makers, owners and architects should coöperate more closely to this end.

It is generally agreed that the box office should be placed at the center of the entrance, as near the street as is possible, and under no circumstances should it be necessary to pass through doors or by other obstructions before a ticket may be purchased.

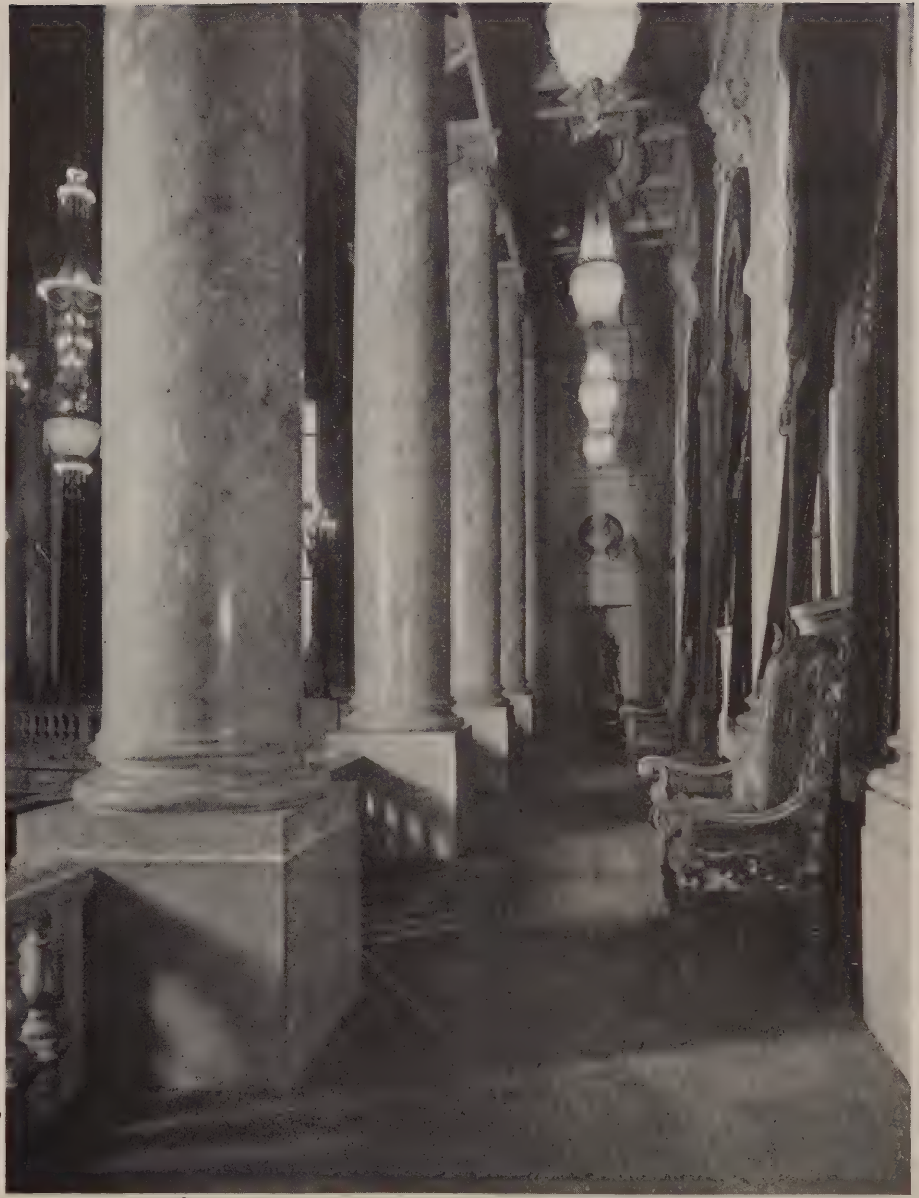
This is the day of the unusual in theater design, and the new Paramount Theater on Times Square, New York, now under construction for the Famous Players-Lasky Corporation, contains several innovations which it is believed will arouse exceptional interest. The main entrance on Broadway will give into a grand lobby 200 feet long and 47 feet wide and rising five stories. Finished in imported marbles and bronze, the lobby will be similar in many ways to the foyer of the world famed Paris Opera House.

The Rialto Square at Joliet, Illinois, now under construction, has a fair example of the niche type of entrance made necessary by commercial and office

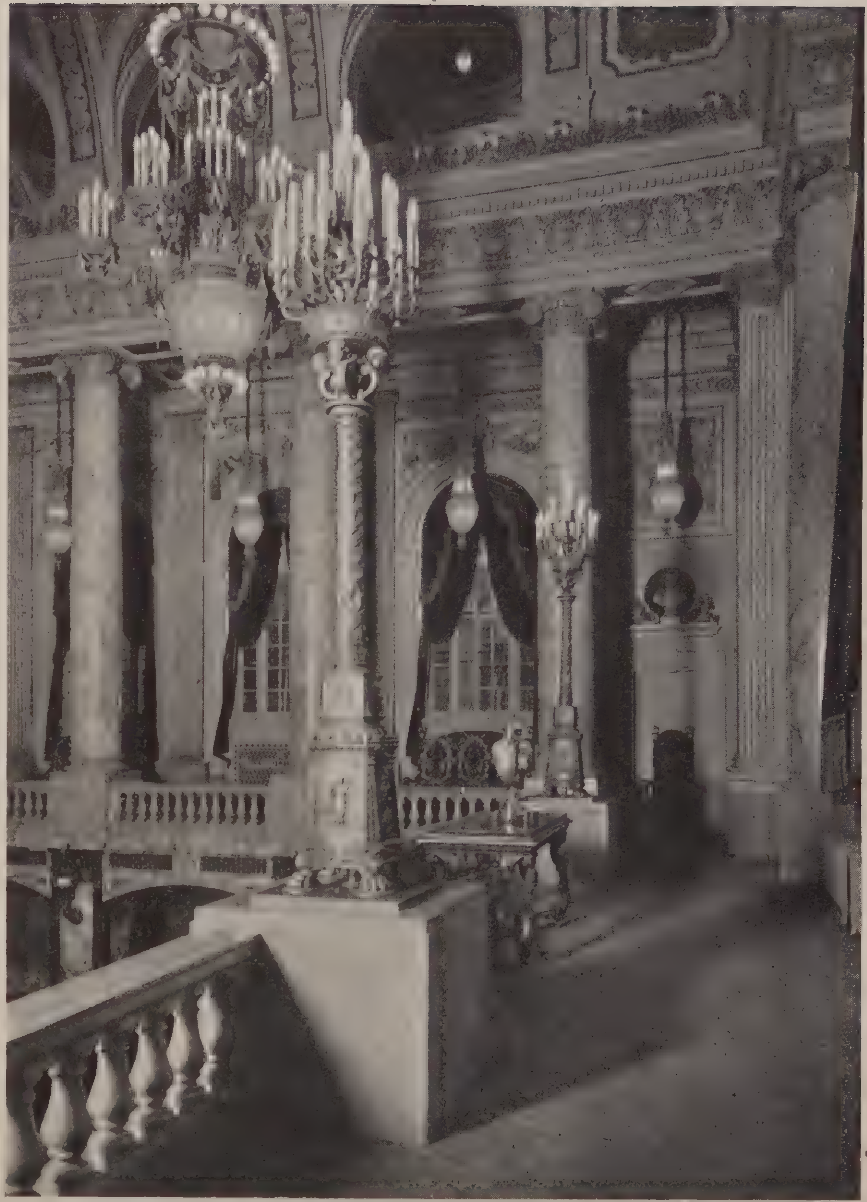


Lobby and Balcony Stairway, Capitol Theater, New York

Thomas W. Lamb, Architect

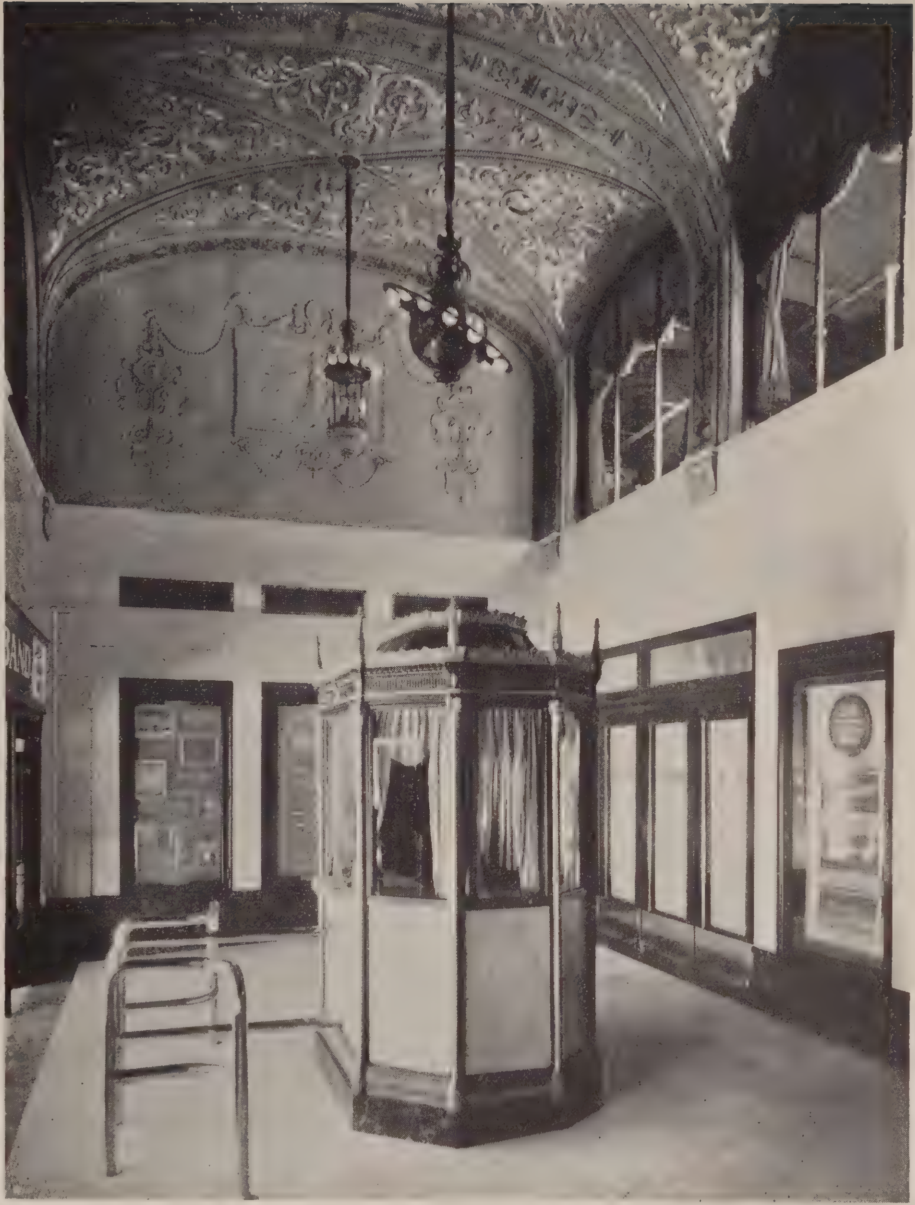


MEZZANINE SIDE AISLE PROMENADE

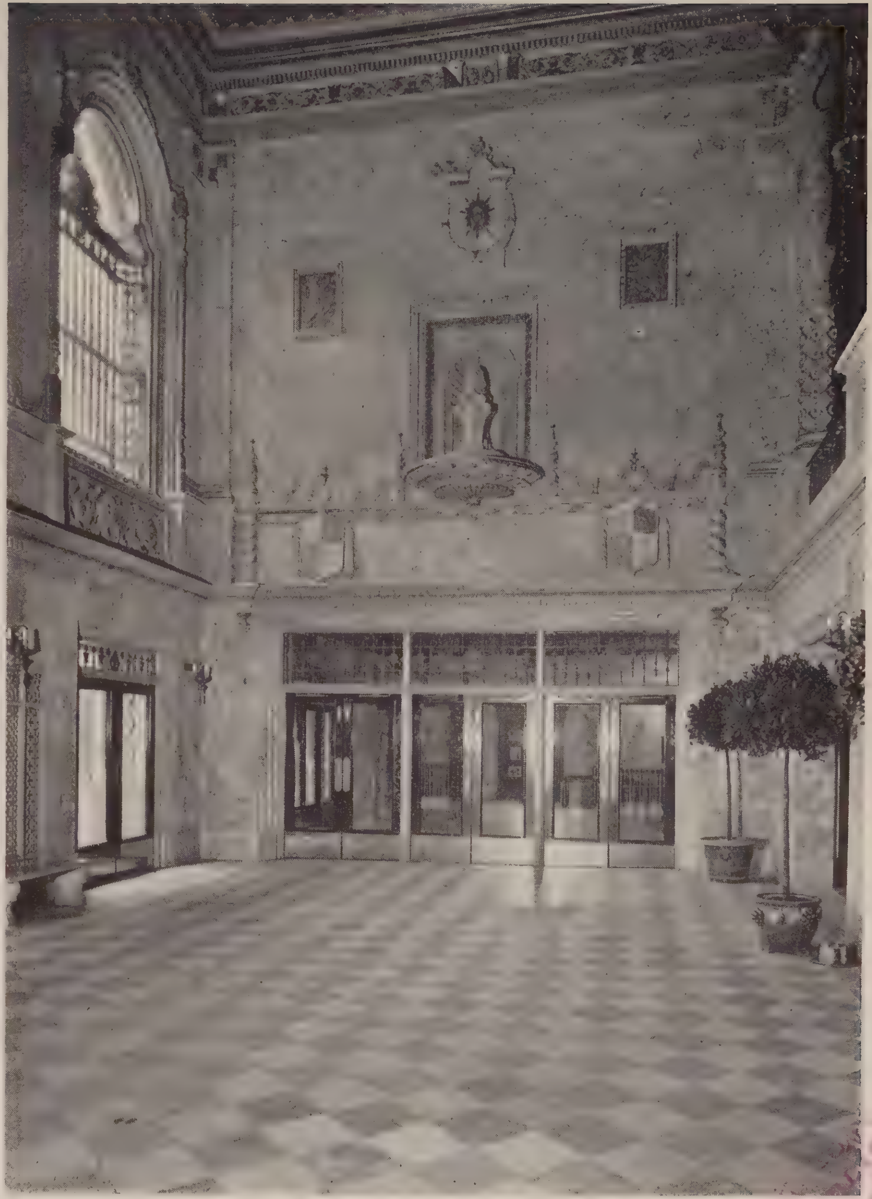


MEZZANINE PROMENADE

THE CHICAGO THEATER, CHICAGO
C. W. & GEORGE L. RAPP, ARCHITECTS



TICKET BOOTH AND LOBBY, WORLD THEATER, OMAHA
C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



ENTRANCE LOBBY, CAPITOL THEATER, ST. PAUL
C. W. & GEORGE L. RAPP, ARCHITECTS

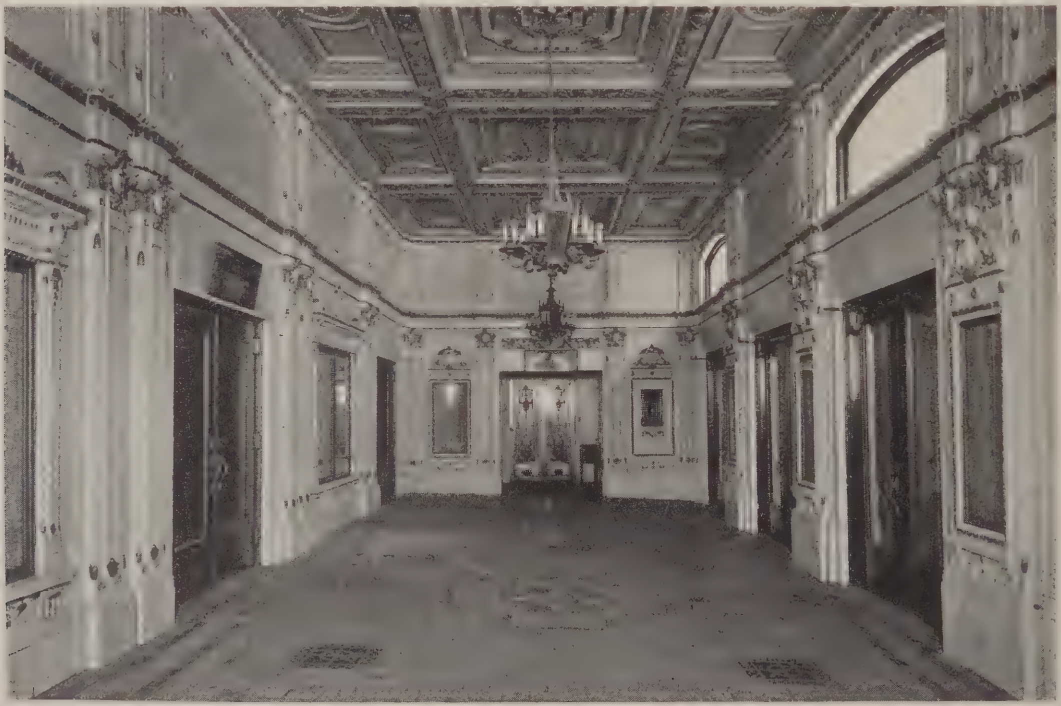
building requirements. In place of the usual commodious lobby, the great recess or niche has been transformed into a veritable miniature and beautiful stage, which will possess immense drawing power. This is of course an unusual treatment.

Equally important to the success of the entrance is the design of the lobby. In reality the lobby must be a place of real interest, a place where the waiting throng may be transformed from the usual pushing, complaining mob into a throng of joyous and contented people. The walls and surfaces of the lobby should be as open in treatment as possible, permitting the theater-goer to get one vista after another, which will produce a decided spirit of adventure and a desire to gain admittance to the other parts of the house. In other words, the lobby should be so designed and so equipped that the fascination resulting from it will keep the patron's mind off the fact that he is waiting. It has a psychological importance.

The stairway should be genuinely enticing, a beckoning magnet and invitation to the upper levels. In the matter of lobby railings for segregating the patrons, it can be said that when the lobby is crowded they cannot be seen, and that when the lobby is not crowded they are not needed. The lobby should be spacious, providing comfortable standing room for the crowds on holidays, and also room for the audience inside to leave with ease.

Our better theaters have done much toward making the lobby appeal to the crowd. Fine paintings, impressive statuary, costly rugs and beautiful tapestries, used for decoration, have a marked effect on the waiting patron. A feature of both the Chicago and Tivoli Theaters in Chicago is the furniture, especially the rich gold grand pianos situated on the mezzanine promenades. The musicians in charge render light, airy selections which make the waiting minutes fly by quickly. Indeed the most striking feature of the Uptown Theater, Chicago, is the lobby, a block long, and of the highest architectural importance. It is a triumph of lobby architecture.

How well the architect can overcome the former aversion of patrons to the upper sections of a theater is exemplified in the case of the Chicago and Tivoli Theaters, whose orchestra floors and balconies are equally patronized day and evening. On entering either of these structures, patrons find themselves in a lofty, imposing and beautifully decorated lobby running across the front and leading into three promenade foyers which face it, one above another, which extend around the sides of the auditorium, giving the main or orchestra floor of the auditorium a foreign, U-shaped plan. The promenade foyers, in full view of the lobby, are wide and spacious, luxuriously furnished, with their walls hung with works of art, and are reached from the lobby by means of a series of wide, imposing and gradually ascending staircases which are flanked on both sides by huge columns. Upon entering the auditorium from the various upper foyers one comes out onto a spacious balcony, descending toward and nearly reaching the stage in a gradual low, sweeping curve, so that the patron often finds it difficult to realize that he is not on the main floor of the theater. A remarkable feature about the auditorium is that an effect of space has been produced in spite of the fact that its lobby covers a ground area of only 60 by 80 feet, and the auditorium of 160 by 170.



Entrance Lobby, New Orpheum Theater, New Orleans
G. Albert Lansburgh, Architect

A Description of the Capitol Theater, Chicago

JOHN EBERSON, Architect

MOST of us can remember "way back when" in the history of the motion picture industry. We recall, more or less vividly, the type of buildings that housed a form of entertainment the provision of which in a comparatively short time has grown to form the seventh largest of the country's industries. One cannot but marvel at the progress that has been made, both in the production of pictures and in the creation of modern edifices for their presentation for the public's benefit.

A striking fact, however, is that in the architectural treatment of places of public amusement we have built along lines of pronounced similarity. This tendency toward sameness does not apply only to theater construction; we see it in modern office buildings, hotels, and other structures now rising. Accepted lines, styles and treatments are followed. The proportions of the project and its embellishments generally constitute its outstanding claim to what distinction it may possess. It is not surprising, therefore, that a theater entirely different from the traditional should be viewed with speculative interest. The Capitol Theater, Chicago, represented a new thought and a new idea in motion picture theater design. In its embryo stage the idea elicited expression of the usual conflicting opinions. Those to whom the plan was unfolded were either wholehearted enthusiasts or decidedly discouraging in their views. However, after six months, the public (and in the picture industry the public is final authority) has definitely placed its stamp of approval on this new type of motion picture theater.

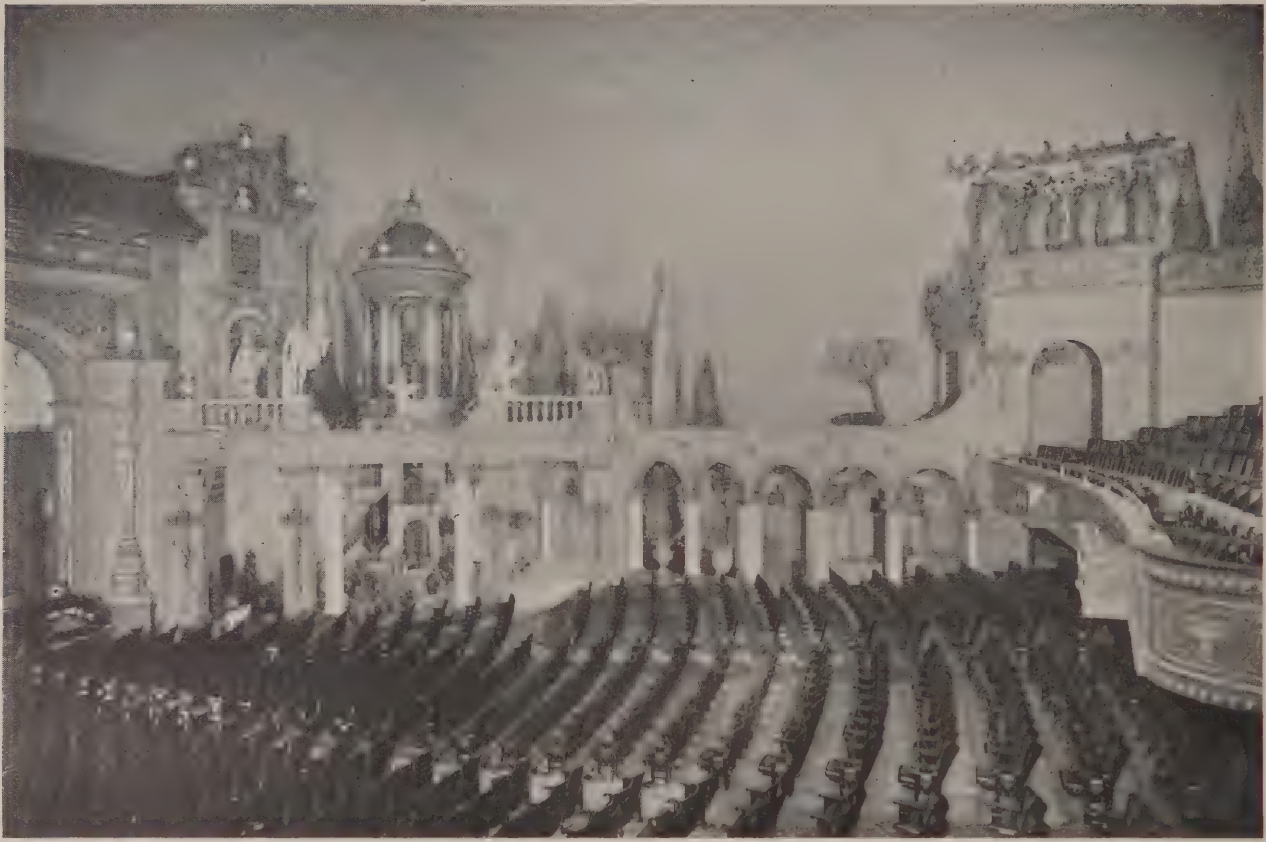
The development of the modern motion picture palace, generally referred to as the "house de luxe," has gone with a rapid commercialization of the "show business," and started with the two- and three-balconied "opera house," housing amateur performances, annual school graduation exercises and traveling road shows. Later, there came the ground-floor opera house and the more intimate and dignified small auditorium, built perhaps by the richest man in the town, and managed under franchises covering road shows, controlled by New York producers. There was also the "variety" or "vaudeville show," calling for more cheerful, more flashy, but still small buildings, devoted to amusements and giving daily performances. From this we very quickly came to the present-day cinema houses.

In the development of the motion picture theater, as we know it today, theaters have been built on parallel or very similar lines. We have had the French Baroque, the Colonial expressed in the Adam style, and a few scattering examples of Greek and Pompeian architecture serving as the standards, creating hundreds of playhouses of wearisome similarity. Stock patterned lines, groaning under the necessity of establishing individuality for the particular theater, have necessitated lavish expenditure to accentuate them. Yesterday's theater is old fashioned today, and today's theater has been virtually a replica of yesterday's except that it has been "dressed up" a little differently and more elaborately.

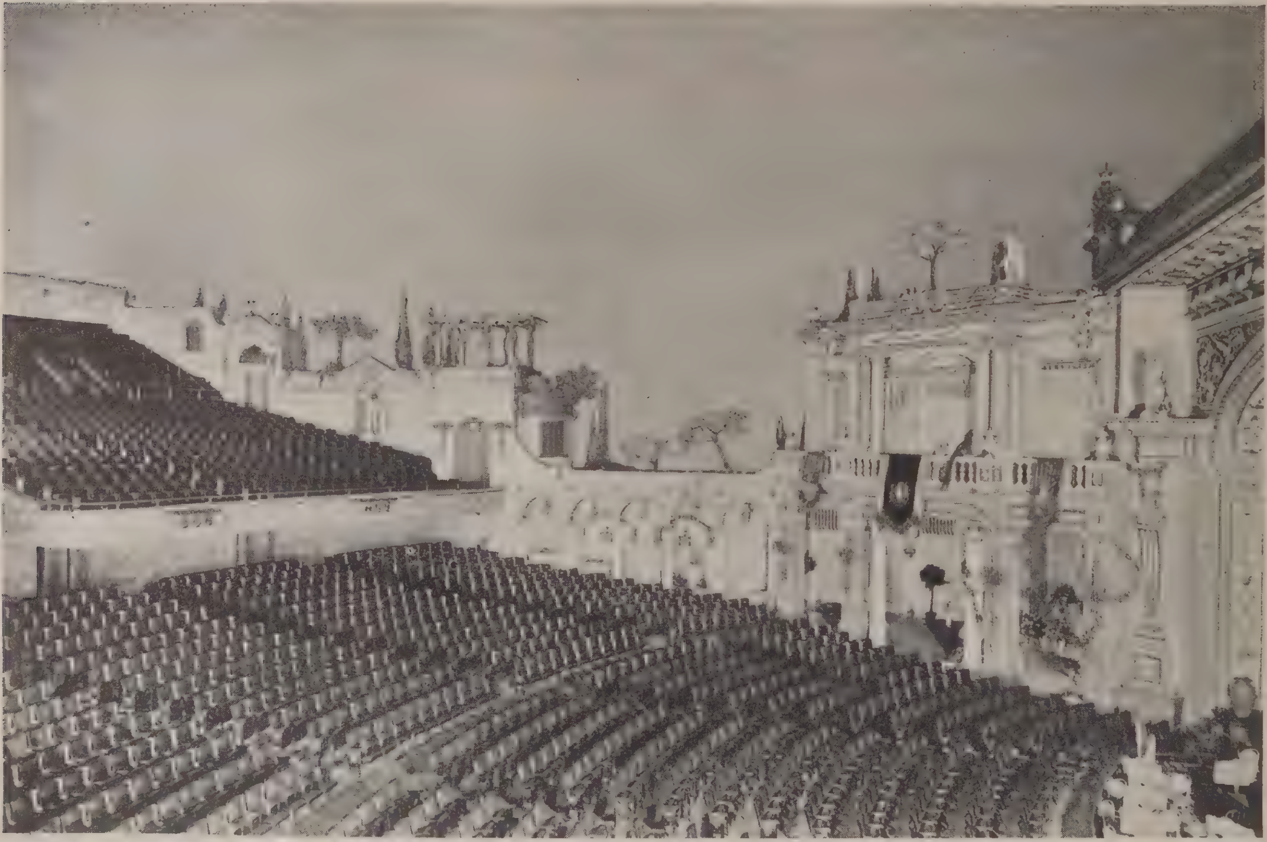
Since variety is the primary demand of an amusement-loving public, it is reasonable to assume that such variety will be appreciated in the place of entertainment as well as in the entertainment itself. The opening performance in one of our gorgeous picture palaces of gold, glitter, silk and satin, rich ornament and glaring decorations, is truly an inspiring sight; but it has been observed that the rapture of the audience is not particularly lasting. Surroundings soon become something akin to oppressive and embarrassing to the steady patron, and with the multitude of new theaters opening, differing from their predecessors only in point of decorative splendor and novel garnishment, it is apparent that the public mind has an idea of what may be expected.

With an appreciation of these facts in mind, the "atmospheric" type of theater suggested itself to the architect of the Capitol Theater. He visualized a magnificent amphitheater set in an Italian garden; in a Persian court; in a Spanish *patio*, any one of them canopied by a soft, moonlit sky. He borrowed from Classic, ancient and definitely established architecture the shape, form and order of house, garden and loggia with which to convert the theater auditorium into Nature's setting. It became necessary to study with utmost care the art of reproducing ancient buildings in form, texture and colors; it was more important to intelligently, appreciatively and artfully use paint, brush and electric light, tree ornament, furnishings, lights and shadows to produce a true atmosphere of the outdoors without cheapening the attempted illusion by overdone trickery. The auditorium thus created seemed to please. Despite its vastness and expanse it offered an atmosphere of intimacy,—a highly desirable feature in theaters,—and—most important of all—the atmosphere is always new, fresh and alive.

The Capitol Theater, Chicago, owned by the National Theaters Corporation, has a strictly Italian Renaissance exterior executed in glazed polychrome terra cotta for the main body and rich polychrome glass in ornamental enrichments, strictly representative of the modern revival and rebirth of antique and classic Roman architecture. Lobbies and foyers are adorned with modified replicas of ornament and designs, typical of the work found at S. Miniato, and done by Niccola Pisano. The entrance lobby has a faience tile floor, imported marble wainscoting and a richly ornamented ceiling with motifs taken from the Villa Cambiasco, and doorheads studied from



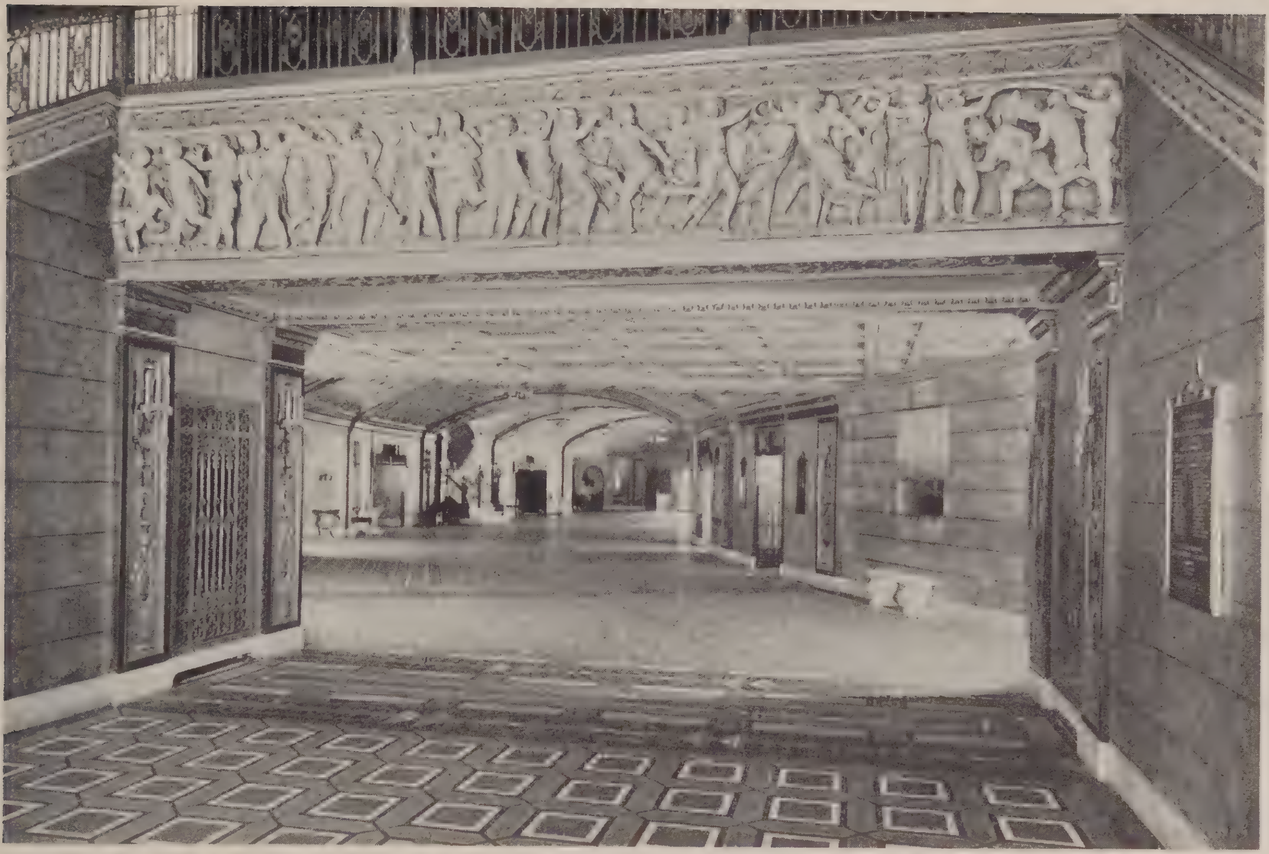
THE EFFECT OF AN OUTDOOR THEATER HAS BEEN SUCCESSFULLY ACHIEVED



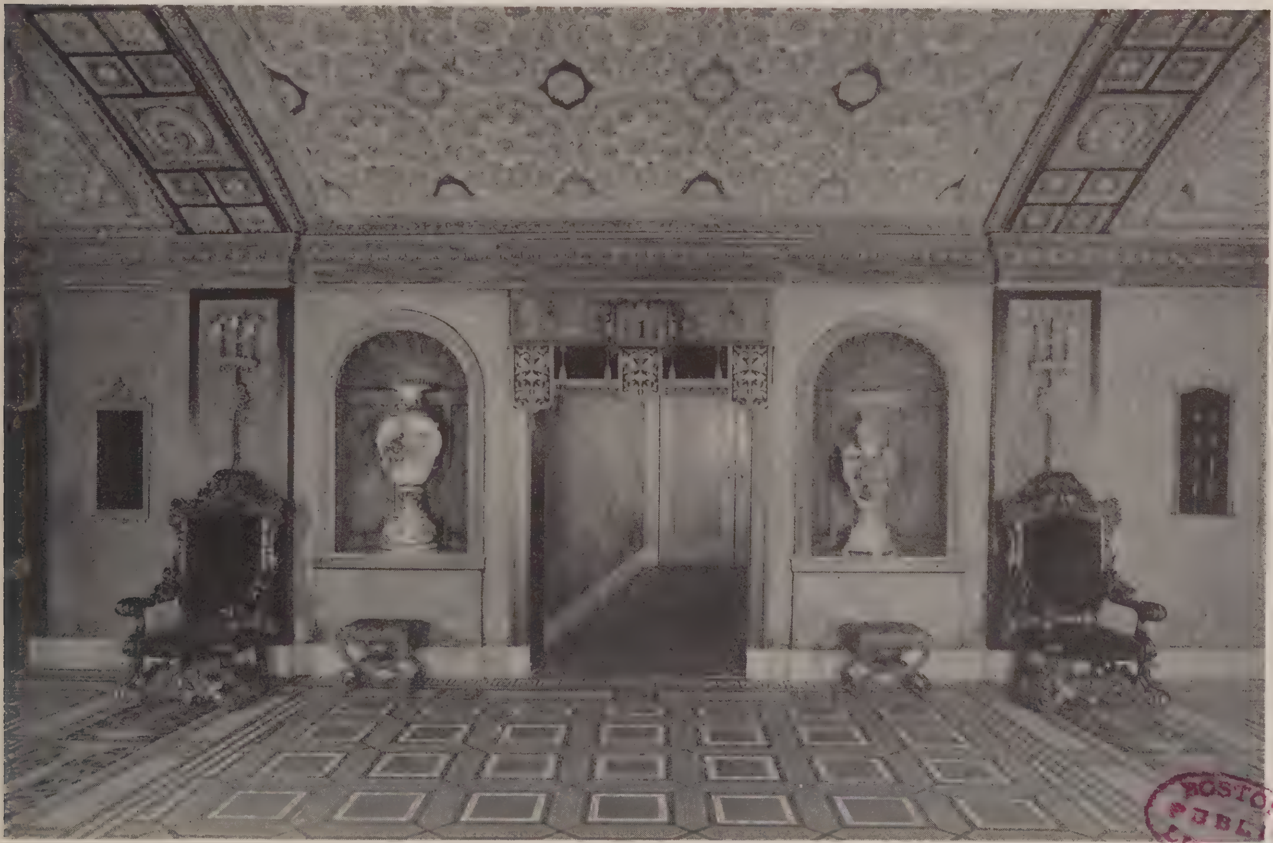
THE AUDITORIUM APPEARS TO BE LOCATED IN AN ITALIAN GARDEN

THE CAPITOL THEATER, CHICAGO

JOHN EBERSON, ARCHITECT



MAIN FOYER FROM THE ENTRANCE



ENTRANCE FROM THE MAIN FOYER TO AN AISLE

THE CAPITOL THEATER, CHICAGO

JOHN EBERSON, ARCHITECT

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one of the galleries of St. Peter's. The main lounge or grand staircase hall is four stories high, representing an Italian *cortile* with clear sky overhead and rich, palatial garden walls adorned with carved niches and statuary. The promenade back of the amphitheater is a replica of an old stuccoed cloister arcade, embellished with wrought iron gates, lanterns and iron-framed mirrors.

The proscenium arch of the Capitol was conceived as a triumphal arch, supported on columns and roofed with a Roman tile roof surrounded by a stone balustrade. The auditorium of the Capitol might briefly be described as representing an Italian garden under a Mediterranean sky, featuring a moonlight night. On the left side of the auditorium is an Italian palace facade. The right side of the auditorium represents a terraced roof garden with a small temple building. Surmounting the whole is a representation of a deep blue sky with moving clouds and twinkling stars, creating a completely out-of-door setting. The cupola of the temple was modeled after one of the many examples of architecture found in Milan, and in the Certosa of Pavia. The openings to the boxes, representing entrances through the palace garden walls, are Ponzello arches.

The pilaster ornament of the great columns, and the pilasters supporting the triumphal arch, are exact reproductions of carvings in a collection of reproduced pilasters in the Academy of Fine Arts in Verona. The door friezes of the main auditorium represent a double gallery and promenade, separated from the auditorium by rich archways carried on marble columns; thus extreme depth and distance are added to the huge interior, and in doing so every aisle and seating requirement ordained by the law has not only been met but the spaces usually allotted to aisles and cross aisles have almost been doubled in size. All of the theater interiors were decorated in rich polychrome. The installation of a very elaborate and specialized lighting system made it possible to add to the illusion and to the patrons' pleasure.

Modified caryatides, sculptured human female figures, are used as column supports of the pergola which conceals the two main ramps leading from the gallery to the balcony. The rustication of the stonework on the palace and garden walls is as found in Renaissance buildings in Florence. The entire decorative scheme of the exterior ornament on the building is carried out in fresco.

The stage setting carries the architectural vision from the auditorium onto the stage without any visible line of demarcation. The entire stage is designed as an Italian formal garden, with towering hedges, practical fountains, and containing a production stage which has a false proscenium resembling a Classic temple. The illusion created by the open air treatment of the auditorium and the intricate scenic and lighting effects of stage setting gives perfect harmony. An interesting detail of decoration is the use of rough-cast plaster, in an antique finish.

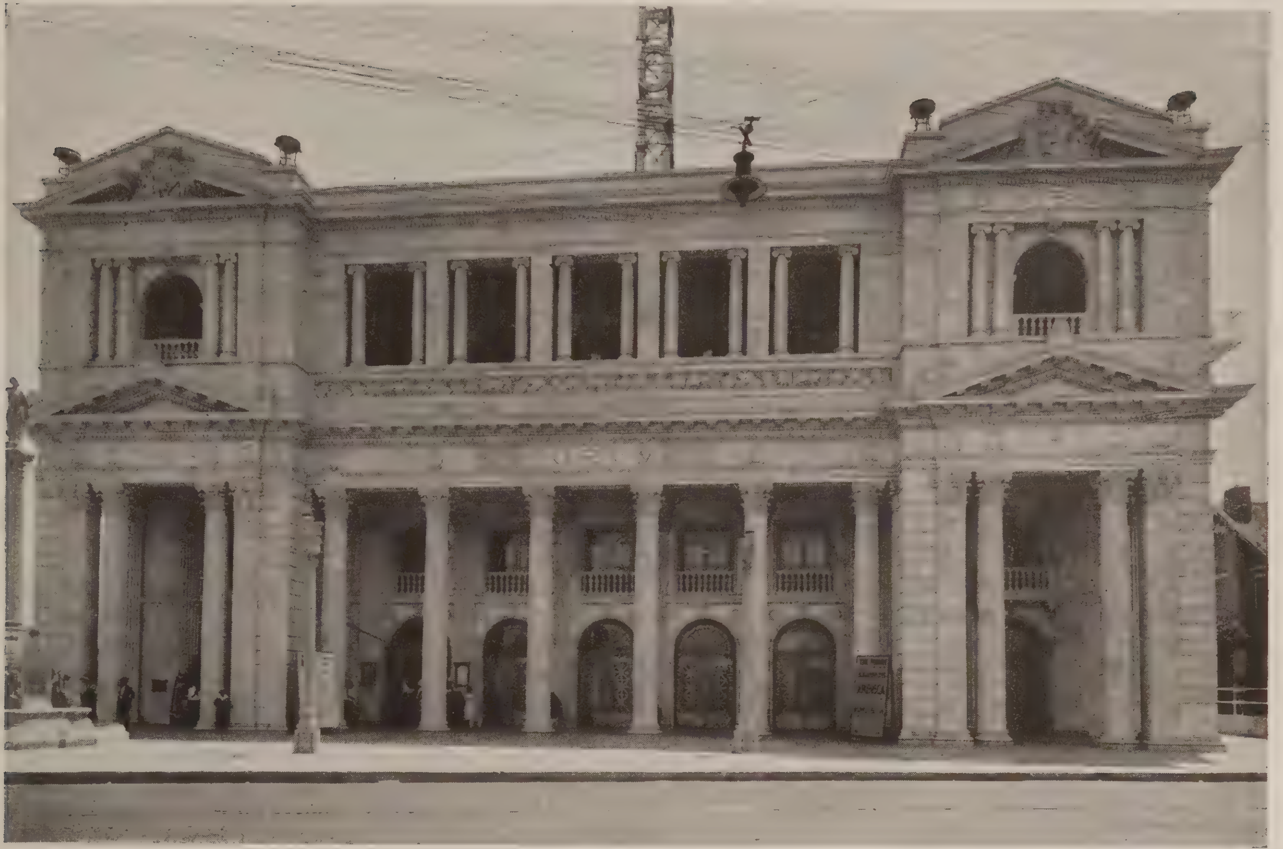
The Capitol Theater has a reinforced concrete foundation, steel skeleton frame, and reinforced concrete amphitheater. The commercial portion of this structure is of reinforced concrete. A very interesting feature is the use of the reinforced concrete proscenium girder spanning 65 feet, being 4 feet thick and 12 feet high. All stairs are of reinforced concrete, covered with marble. A complete, scientifically controlled heating and ventilating plant was installed, containing refrigerating apparatus, by the use of which fresh tempered and treated air is delivered to all portions of the building—warmed, washed air in winter and cooled, washed air in summer. The distribution of this air is accomplished by both side wall and floor openings, and an automatic, controlled system will assure patrons at all times of proper and agreeable atmospheric conditions.

The sub-stage floor of the Capitol contains a very large rehearsal room, a screening room, a musical director's library, toilet rooms for employes and all possible mechanical equipment, such as hydraulic curtain machine, vacuum cleaners, remote control board, organ blowers, ozone machines, electric air scenting machines and tanks, fire pumps, oil-burning heating equipment, transformer vault, refrigerating machine, motor generator, etc. A vestibule, 20 by 50 feet, contains a box office built of marble and cast bronze, permitting easy access to the main entrance and accommodating patrons at two windows. This vestibule and the 100-foot canopy which protects its entrance are illuminated with hundreds of incandescent lamps, giving the brilliance of daylight. Six sets of standard theater exit doors lead from this vestibule into the outer lobby, a room 50 by 60, having an Italian faience tile floor, walls covered with red damask, and a most interesting wood ceiling.

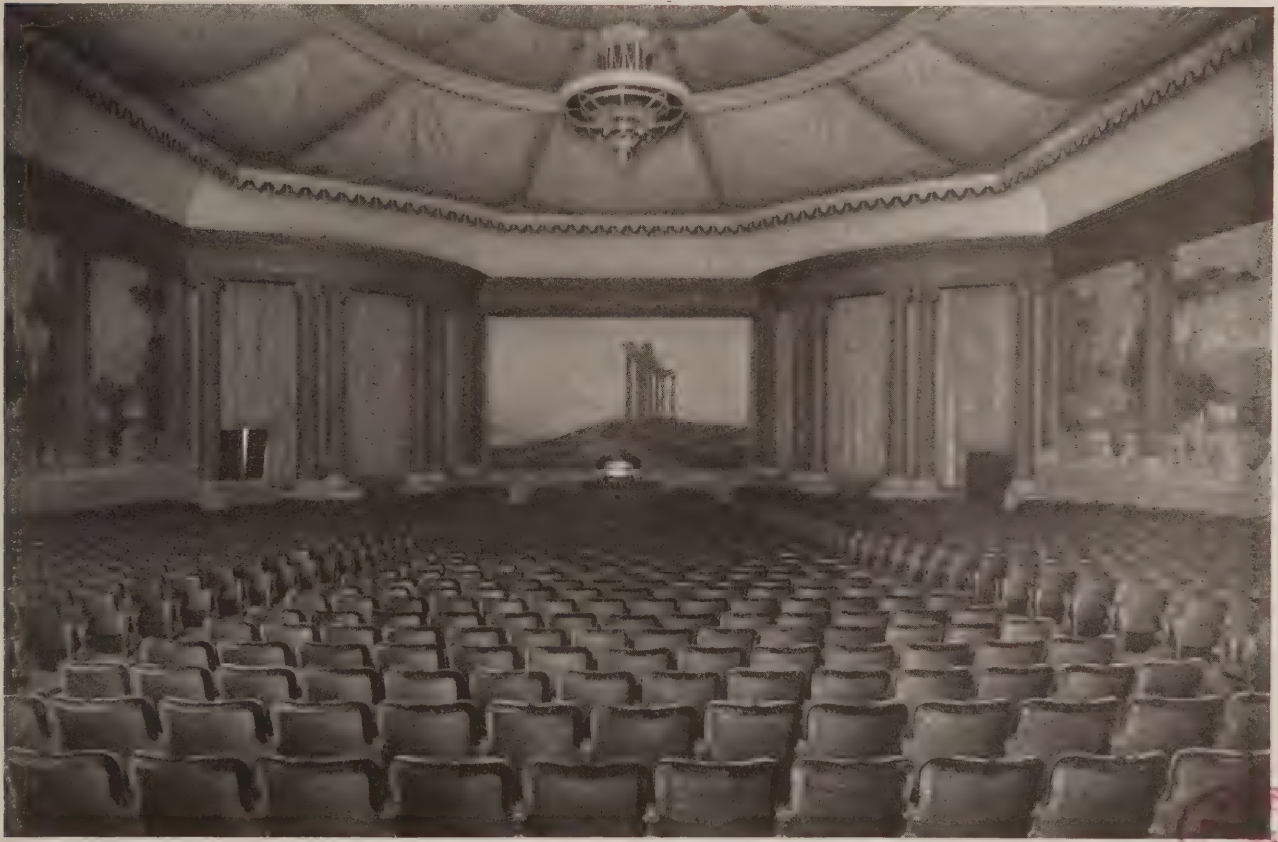
Festive torches cast interesting shadows on the loggia, which forms the portal to the circular foyer which is 36 feet wide and 115 feet long. The loggia contains a grand stairway executed in marble with hand wrought railings, surrounded by garden walls and covered by a domed sky ceiling illuminated in polychrome effect with Italian lantern ceiling fixtures. Another set of exit doors separates this outer lobby from the grand staircase, the imitation Italian limestone walls creating an unusual feeling of distance and grandeur. The circular foyer, which leads directly to another set of exit doors, represents an arcade with rough plastered walls, faience tile floor and an all-over pattern arched ceiling, decorated in richest polychrome and lighted with special fixtures.

Adjoining the foyer and separated by open hand-wrought iron gates is a large smoking room and men's retiring room with vaulted rough plaster ceiling and black and yellow tile wainscot.

In one of the interesting corners of the foyer is a gateway, leading out into what seems to be an open garden, a bit of interesting illusion created by the painters' and property makers' art; through a semi-open gate one perceives an Italian rose garden, adding depth and preparing the guests for the surprise which they are to experience when entering the house.



FRONT ELEVATION

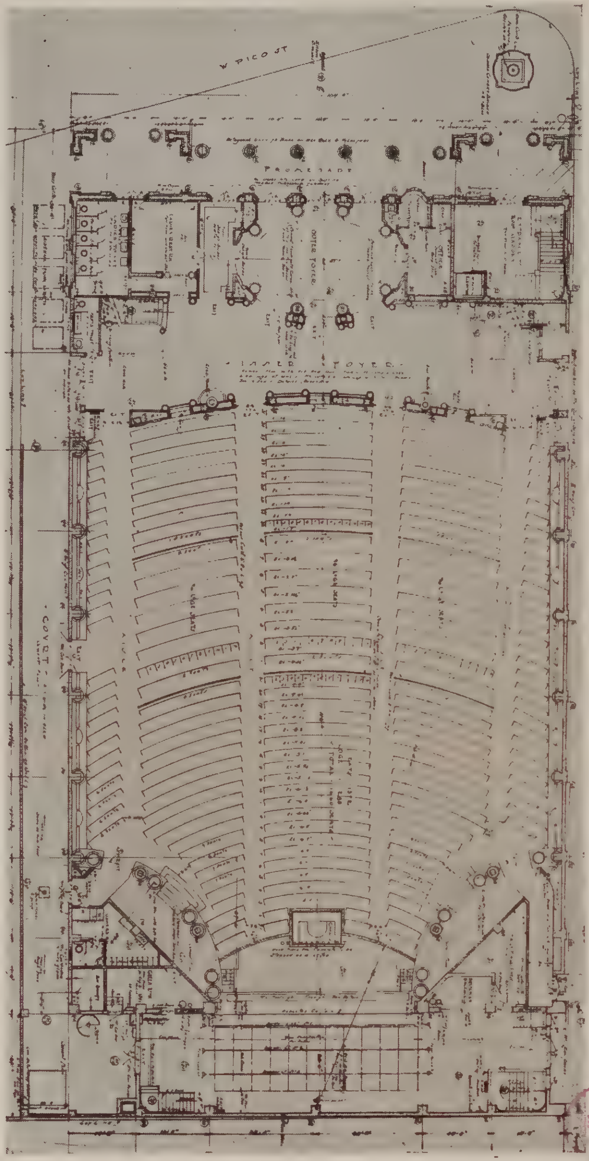


AUDITORIUM

(Plans on Back)

THE FORUM THEATER, LOS ANGELES

EDWARD J. BORGMEYER, ARCHITECT



MAIN FLOOR

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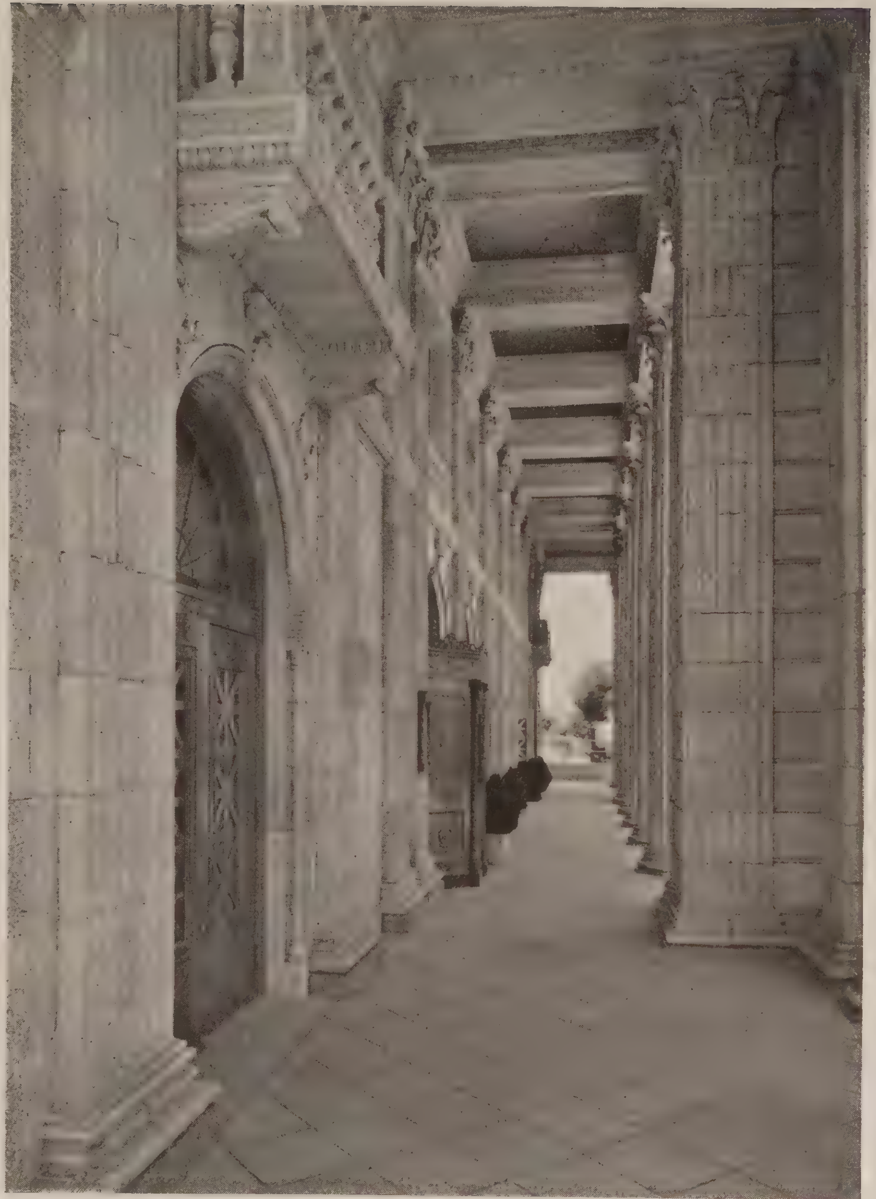
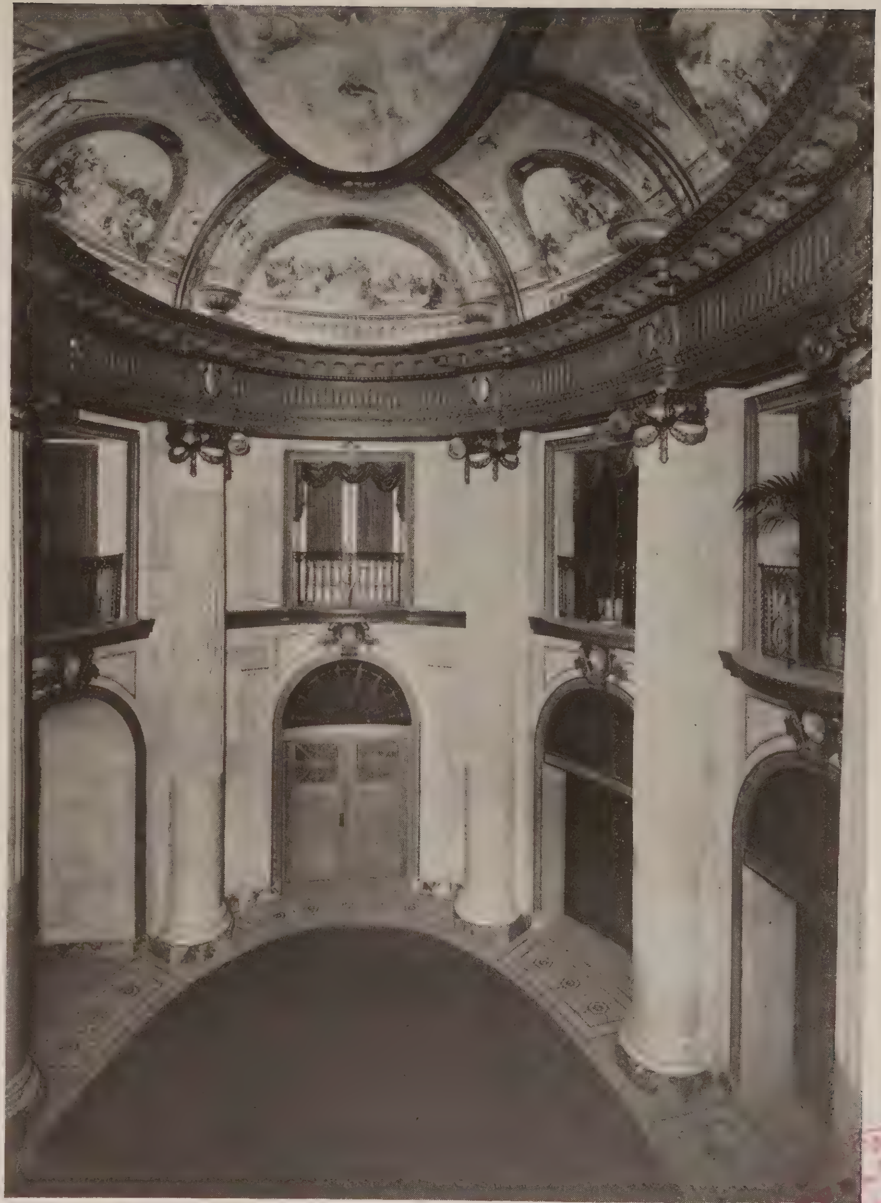
PLANS, THE FORUM THEATER, LOS ANGELES

EDWARD J. BORGMEYER, ARCHITECT

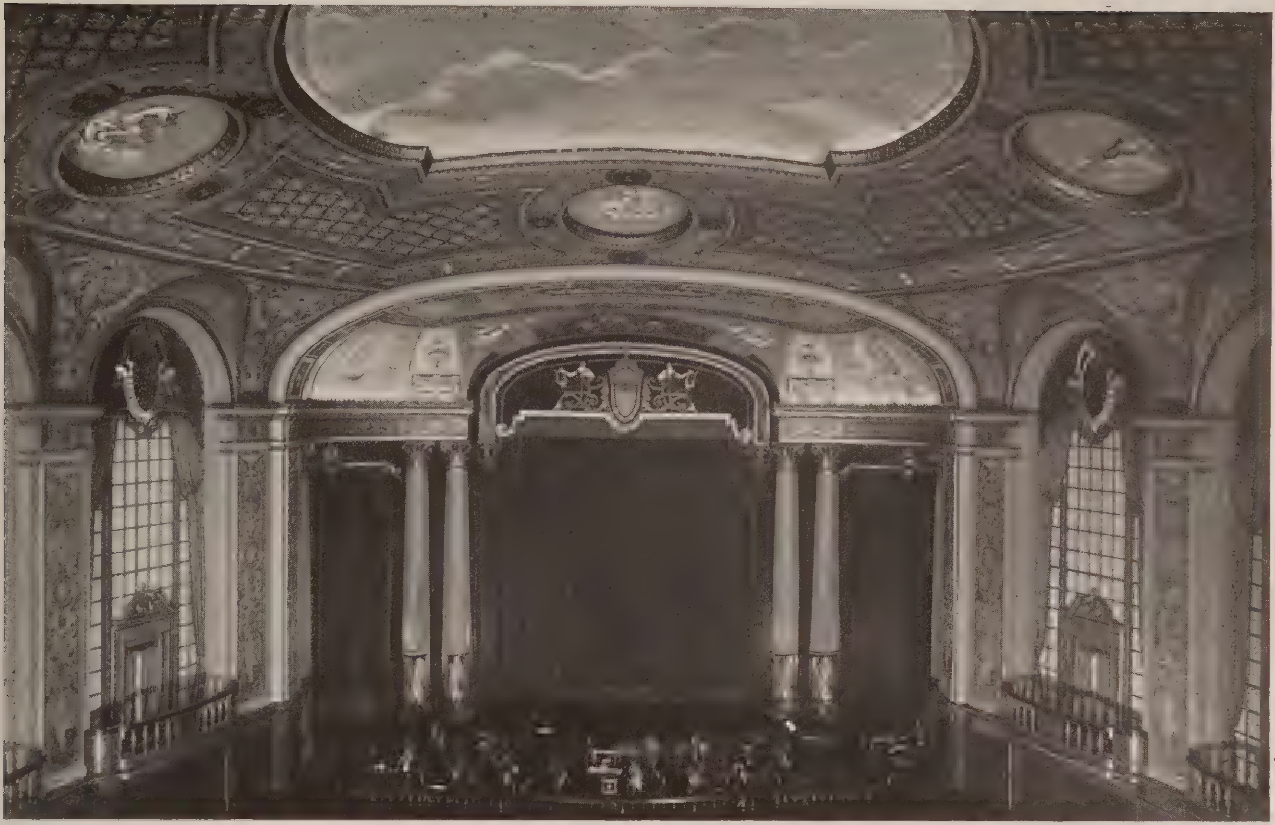


FRONT COLONNADE

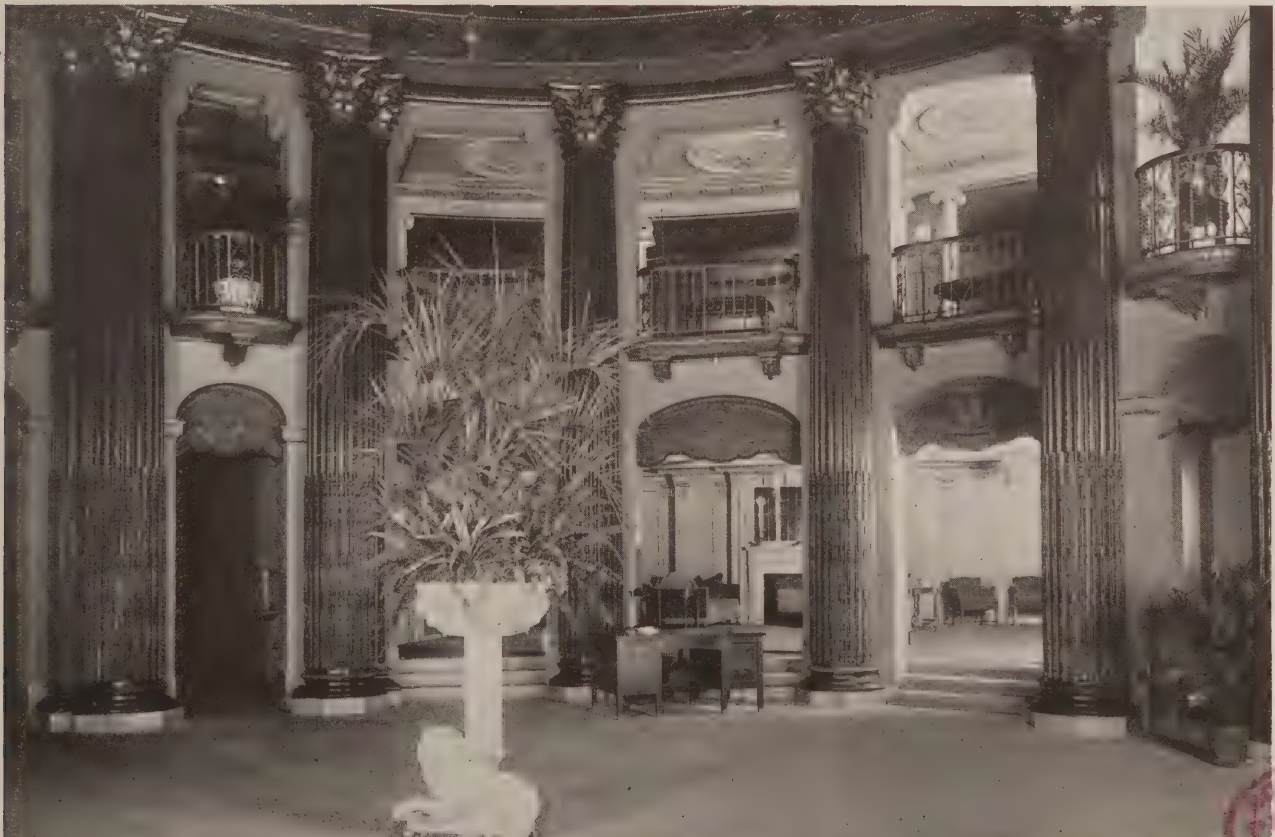


MAIN ENTRANCE FOYER

THE FORUM THEATER, LOS ANGELES
EDWARD J. BORGMEYER, ARCHITECT

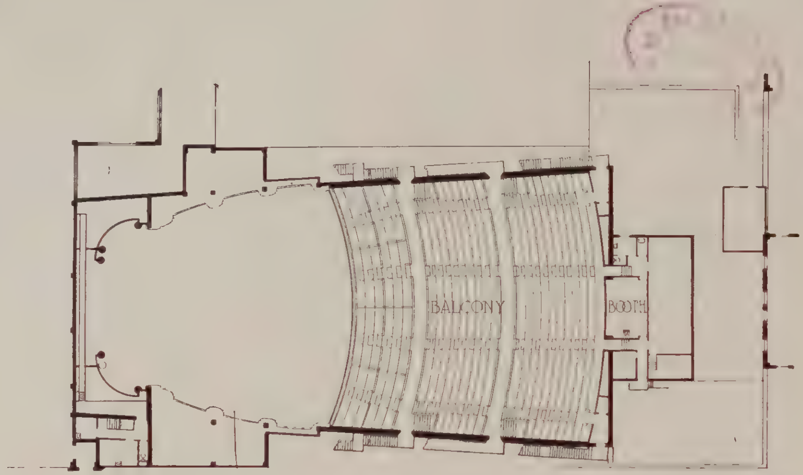


VIEW TOWARD THE STAGE

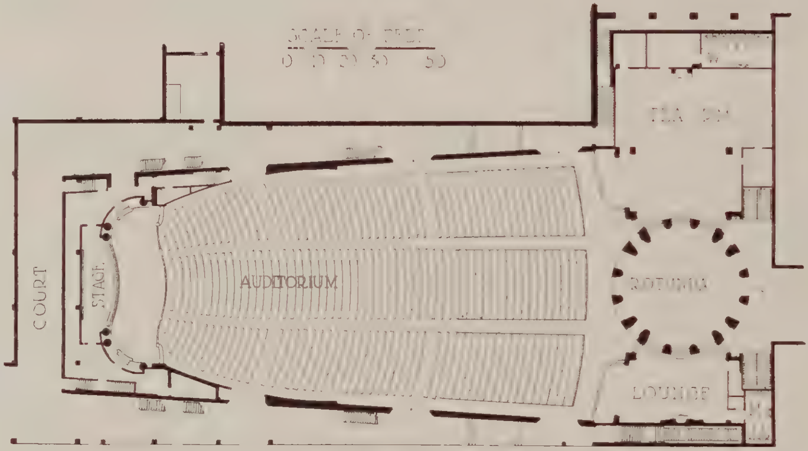


ENTRANCE ROTUNDA

THE ALLEN THEATER, CLEVELAND
C. HOWARD CRANE, ARCHITECT



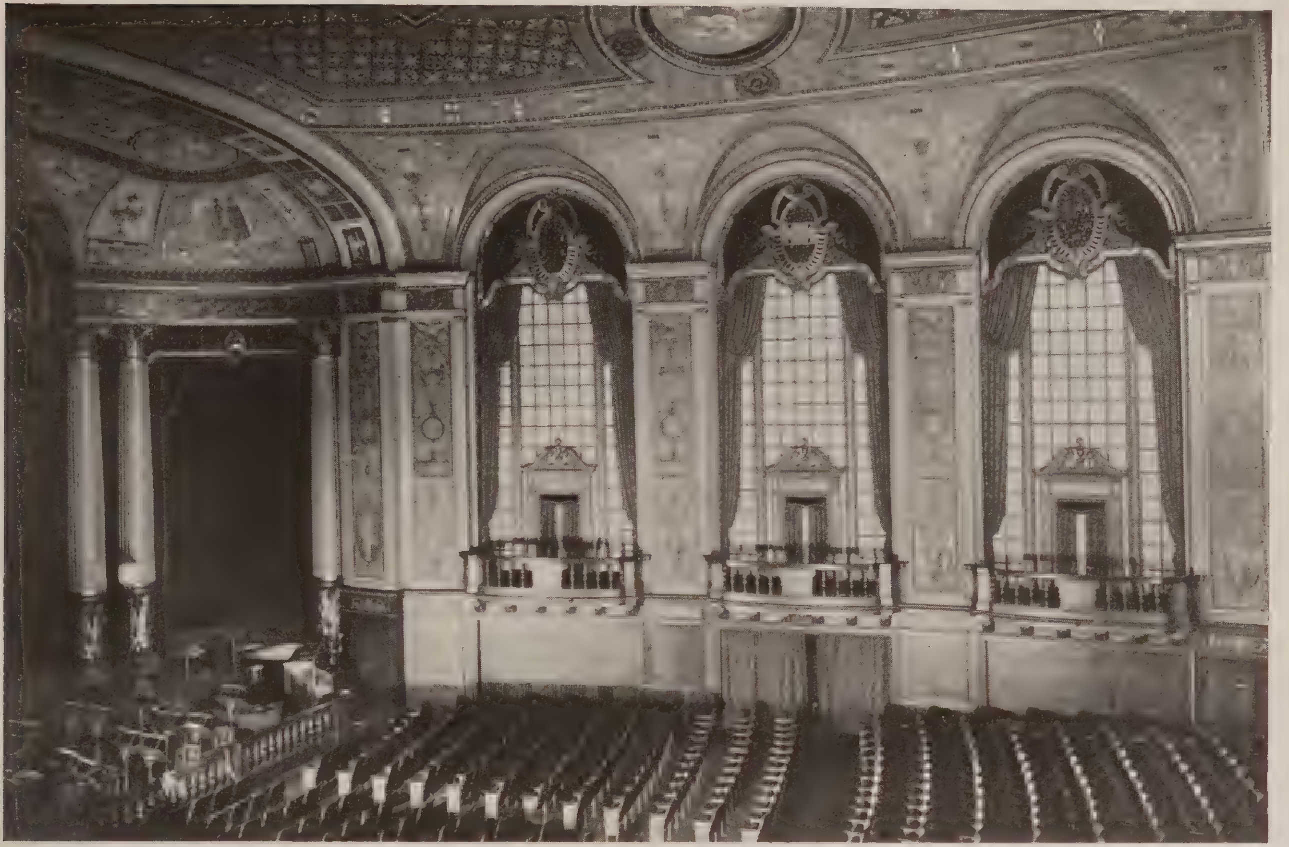
BALCONY FLOOR



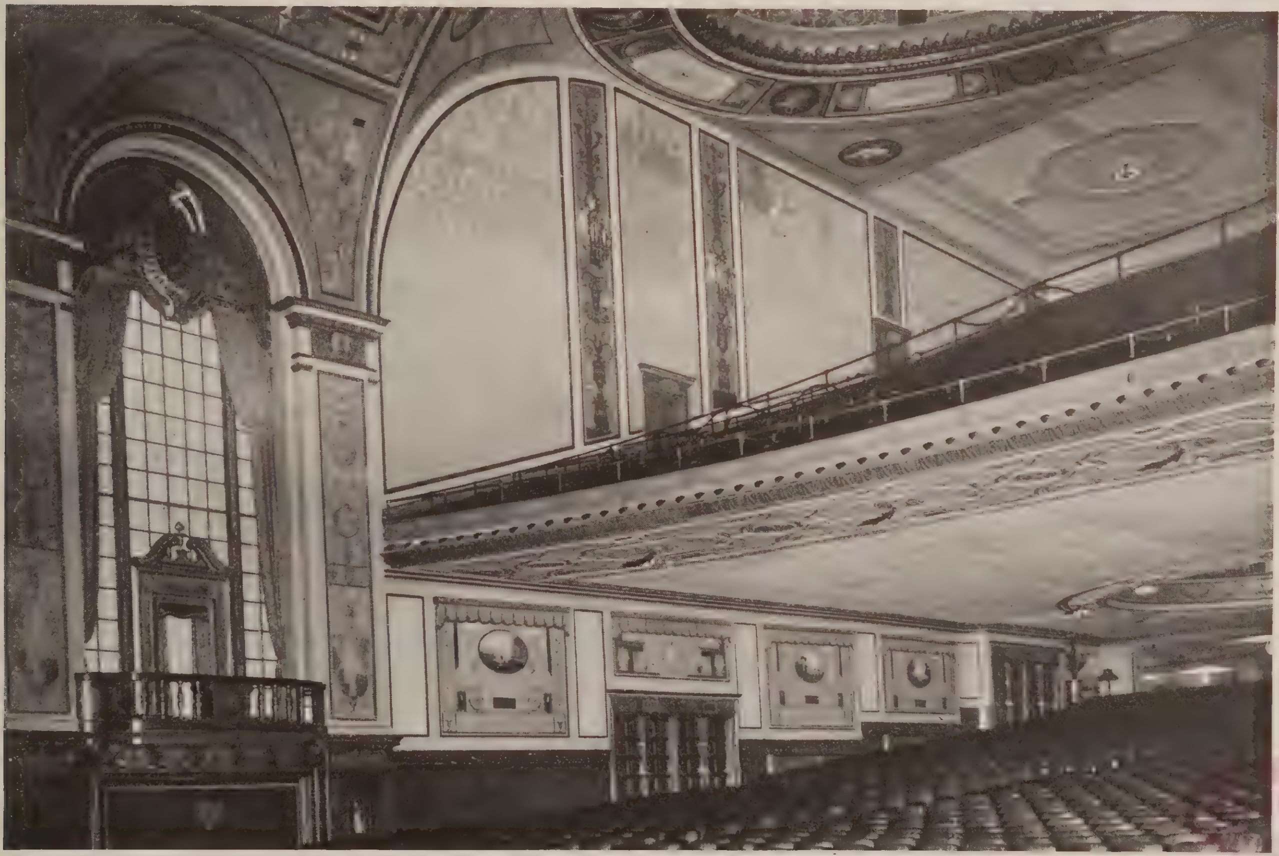
MAIN FLOOR

PLANS, THE ALLEN THEATER, CLEVELAND

C. HOWARD CRANE, ARCHITECT



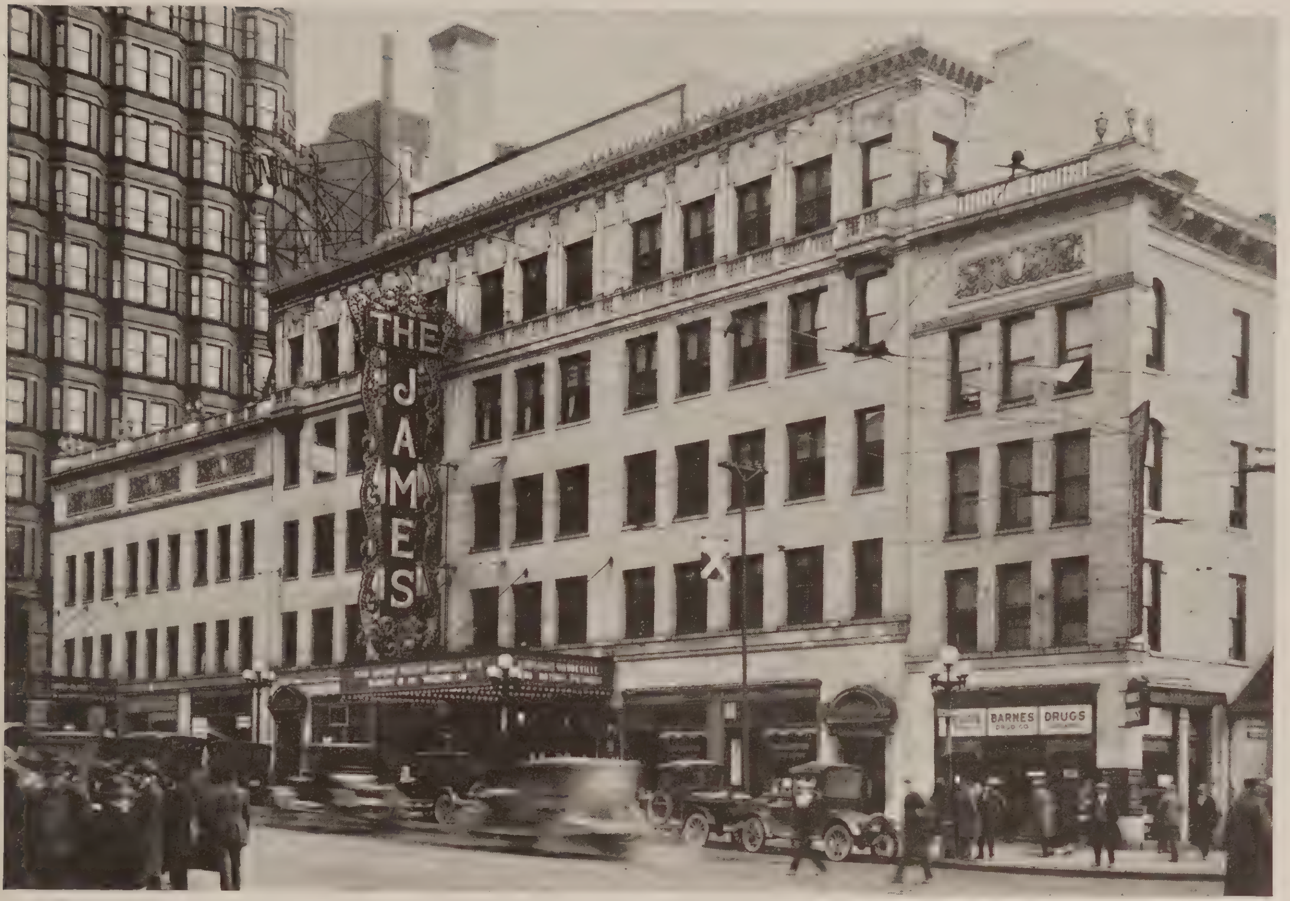
EAST SIDE OF AUDITORIUM



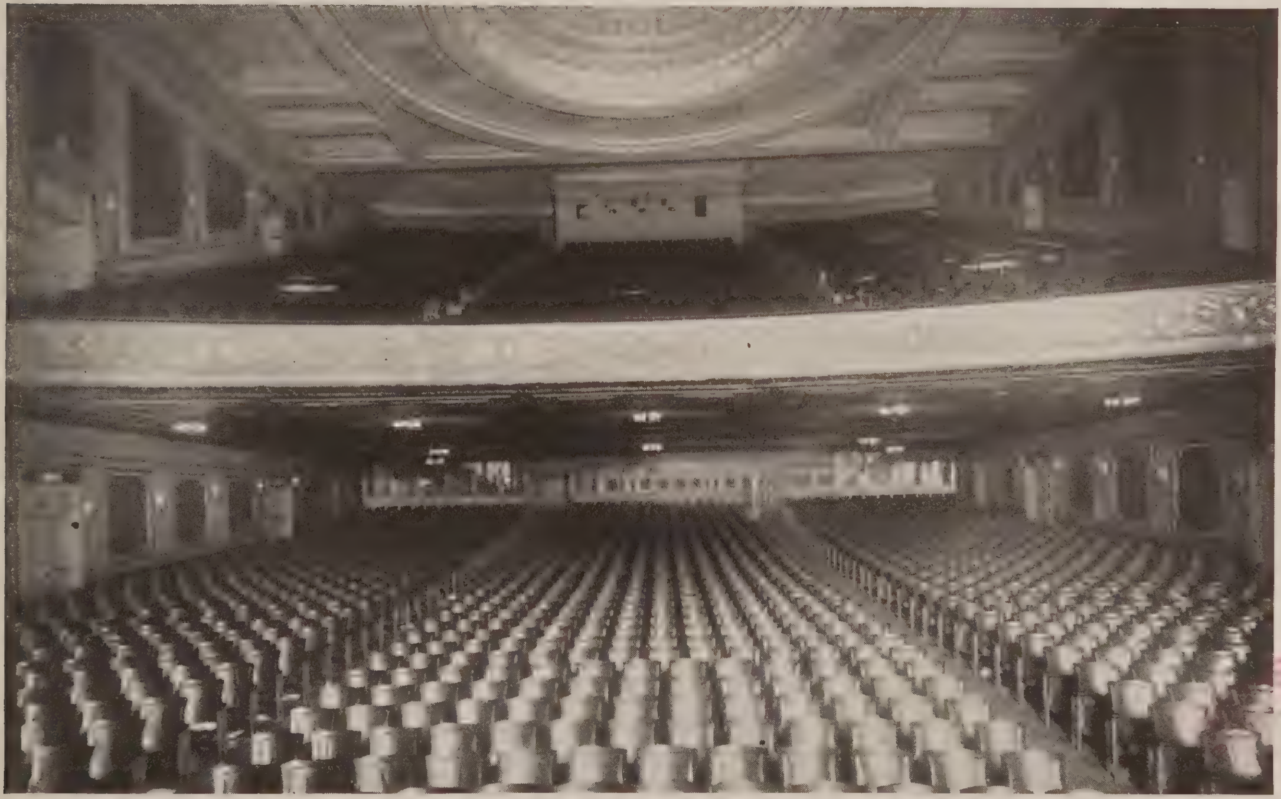
AT THE LINE OF THE BALCONY

THE ALLEN THEATER, CLEVELAND

C. HOWARD CRANE, ARCHITECT



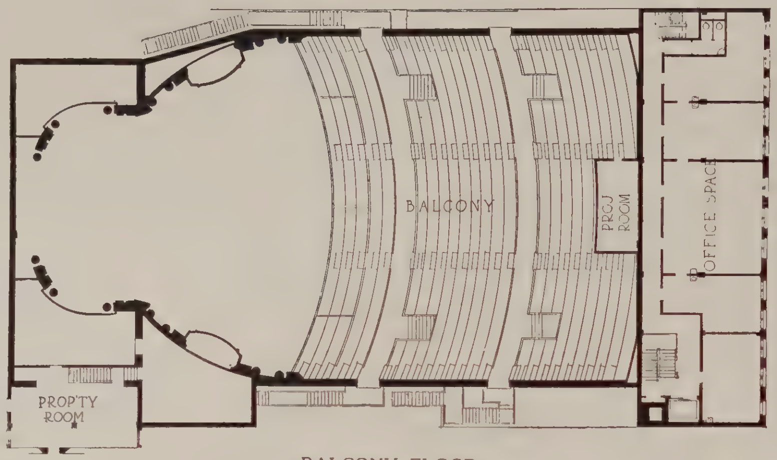
FRONT ELEVATION



AUDITORIUM LOOKING TOWARD BALCONY

THE JAMES THEATER, COLUMBUS, OHIO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



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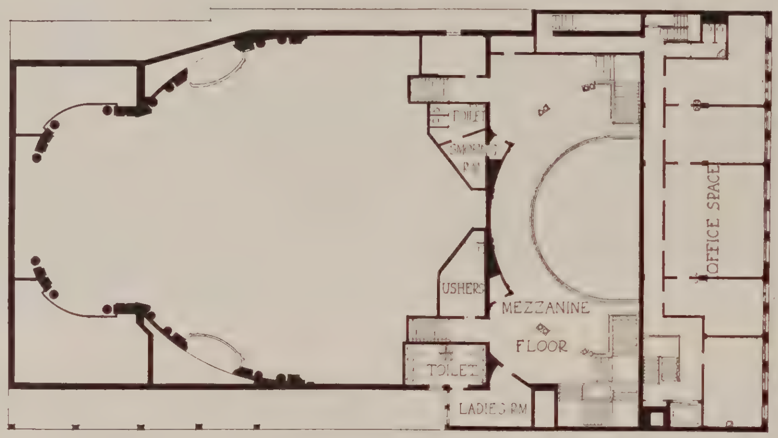
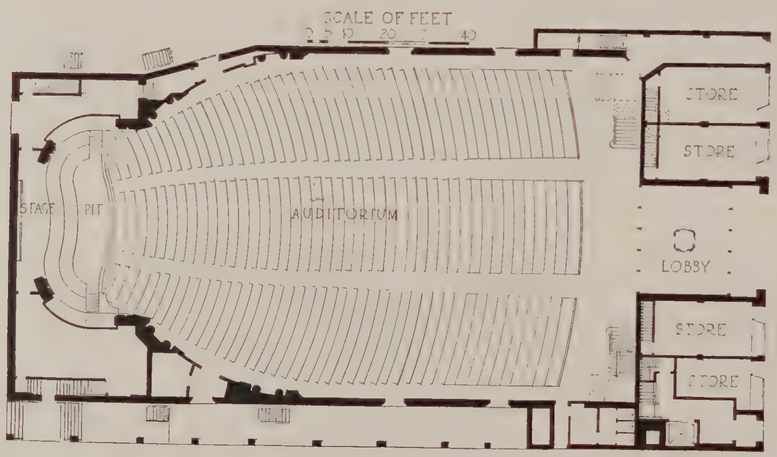


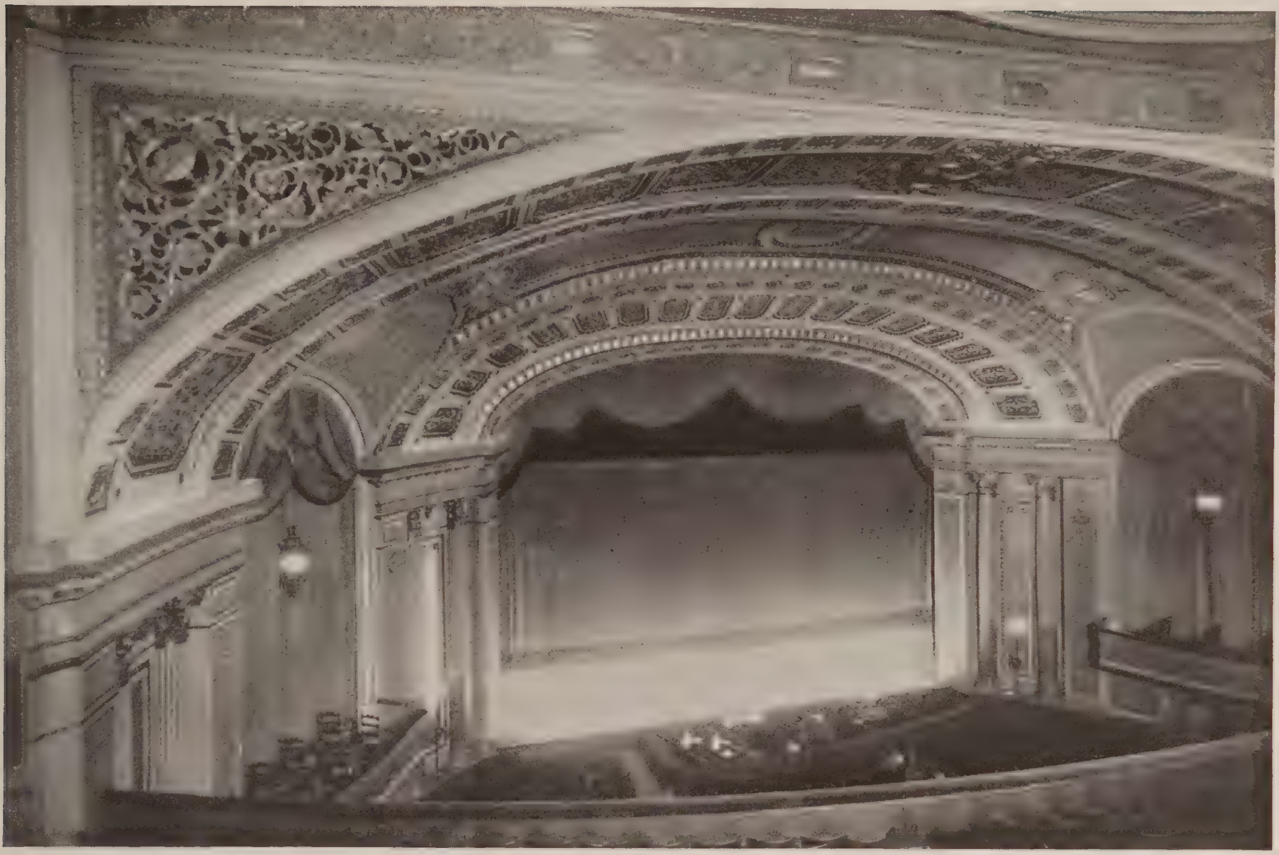
MEZZANINE FLOOR



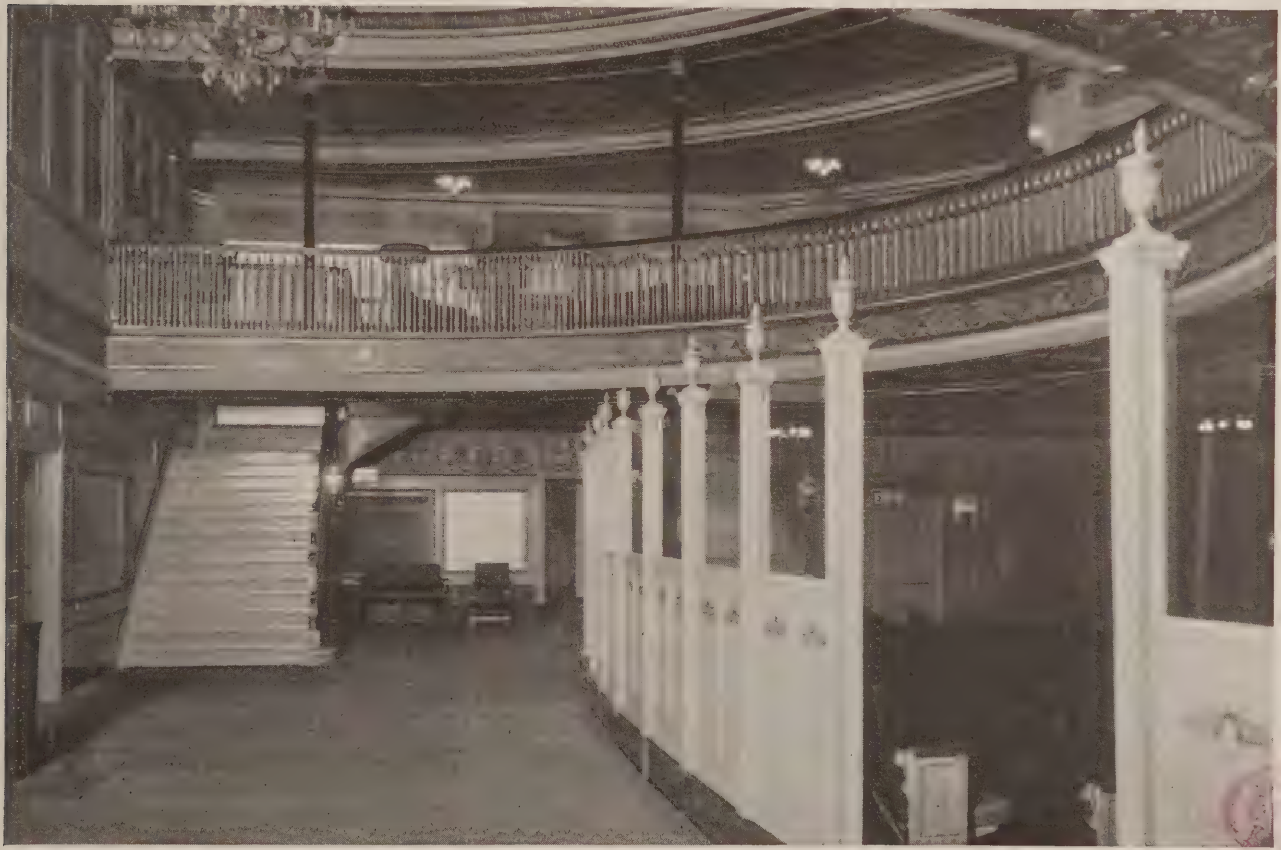
MAIN FLOOR

PLANS, THE JAMES THEATER, COLUMBUS, OHIO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



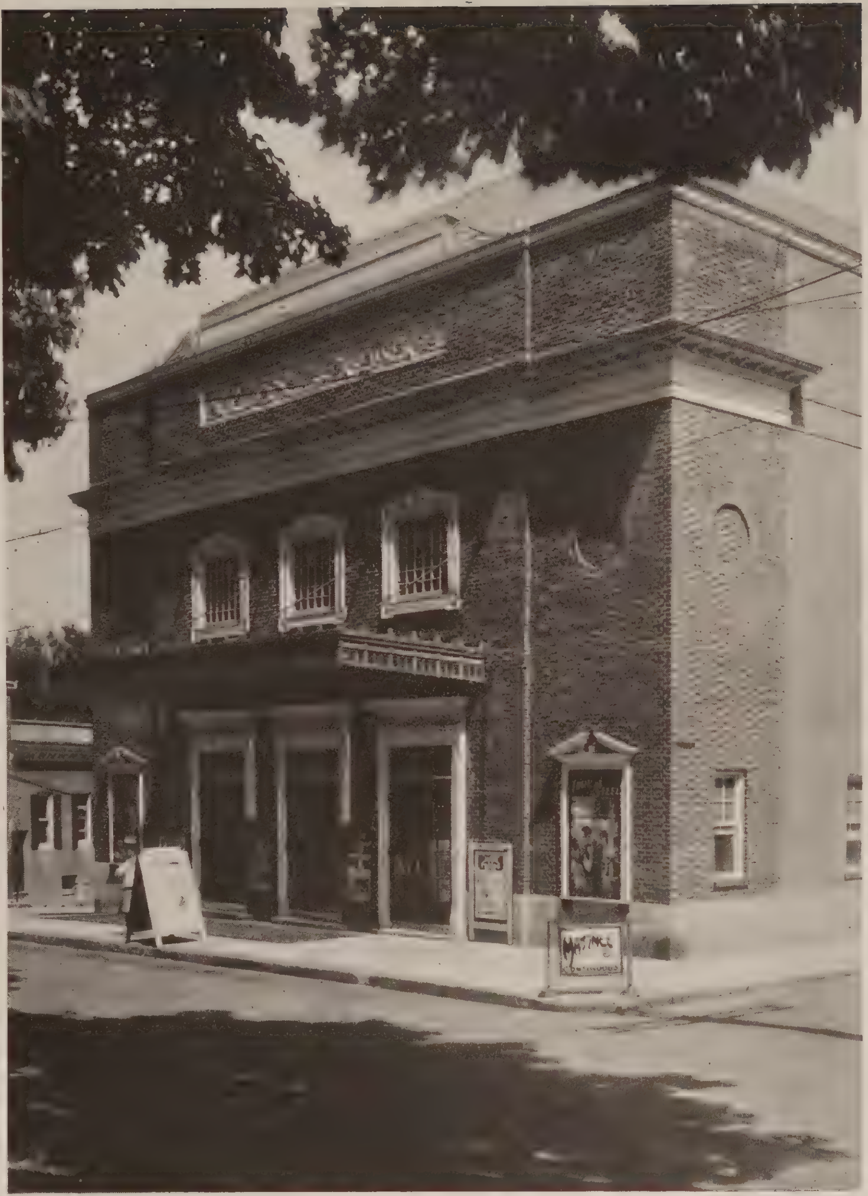
ORCHESTRA AND STAGE FROM THE BALCONY



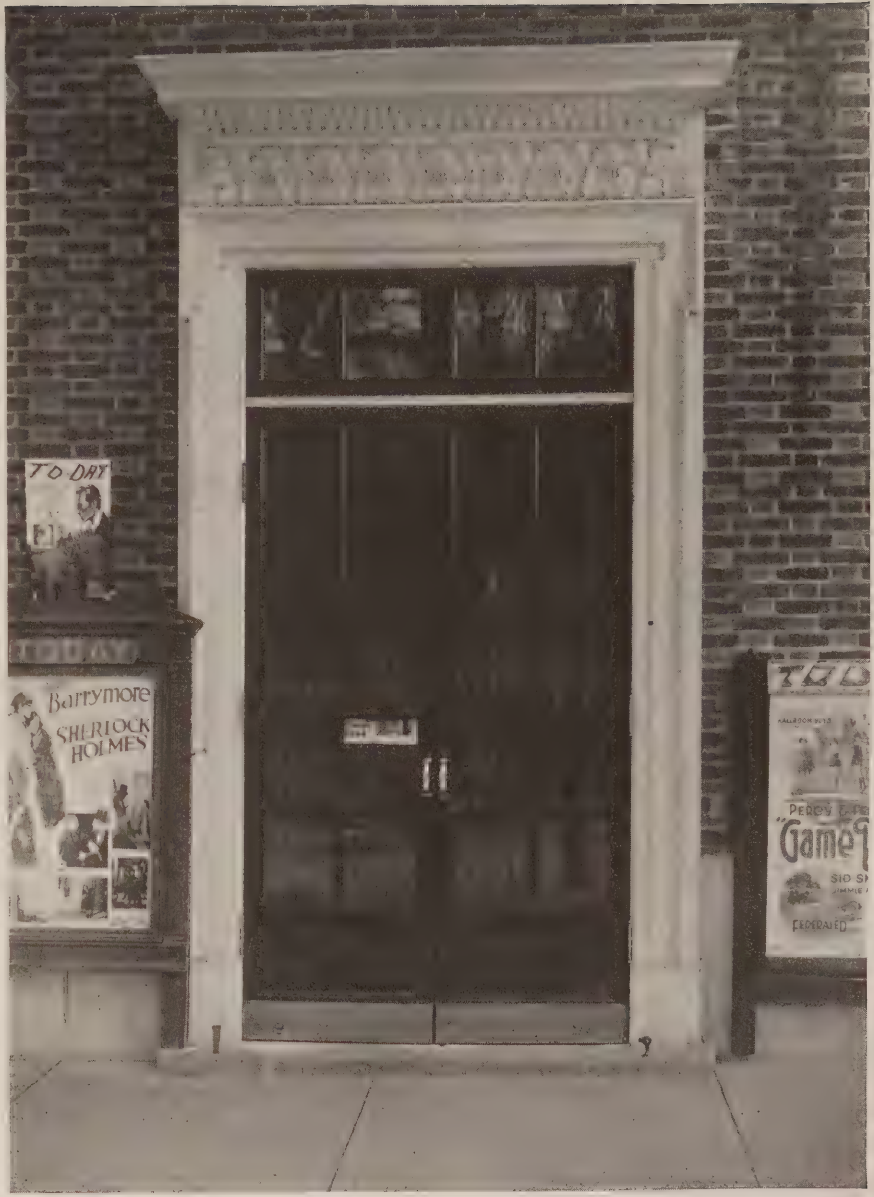
BALCONY STAIRWAY AND ORCHESTRA SCREEN

THE JAMES THEATER, COLUMBUS, OHIO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



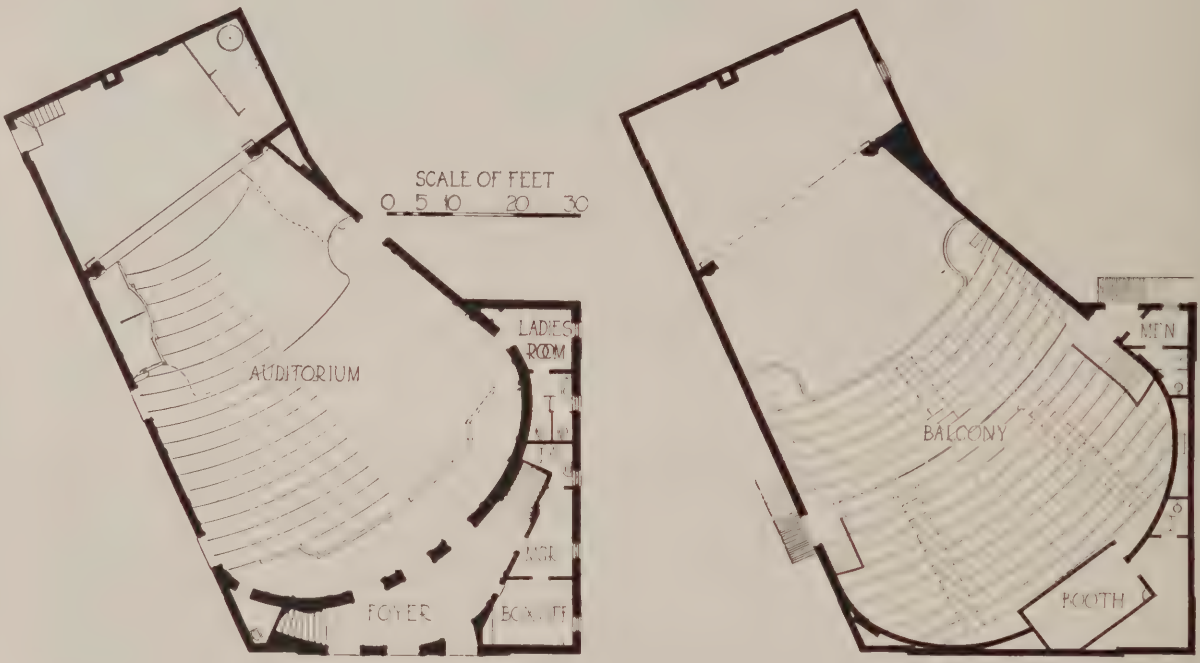
FRONT ELEVATION



DETAIL OF ENTRANCE DOOR

(Plans on Back)

THE CIRCLE PLAYHOUSE, ANNAPOLIS
HENRY P. HOPKINS, ARCHITECT

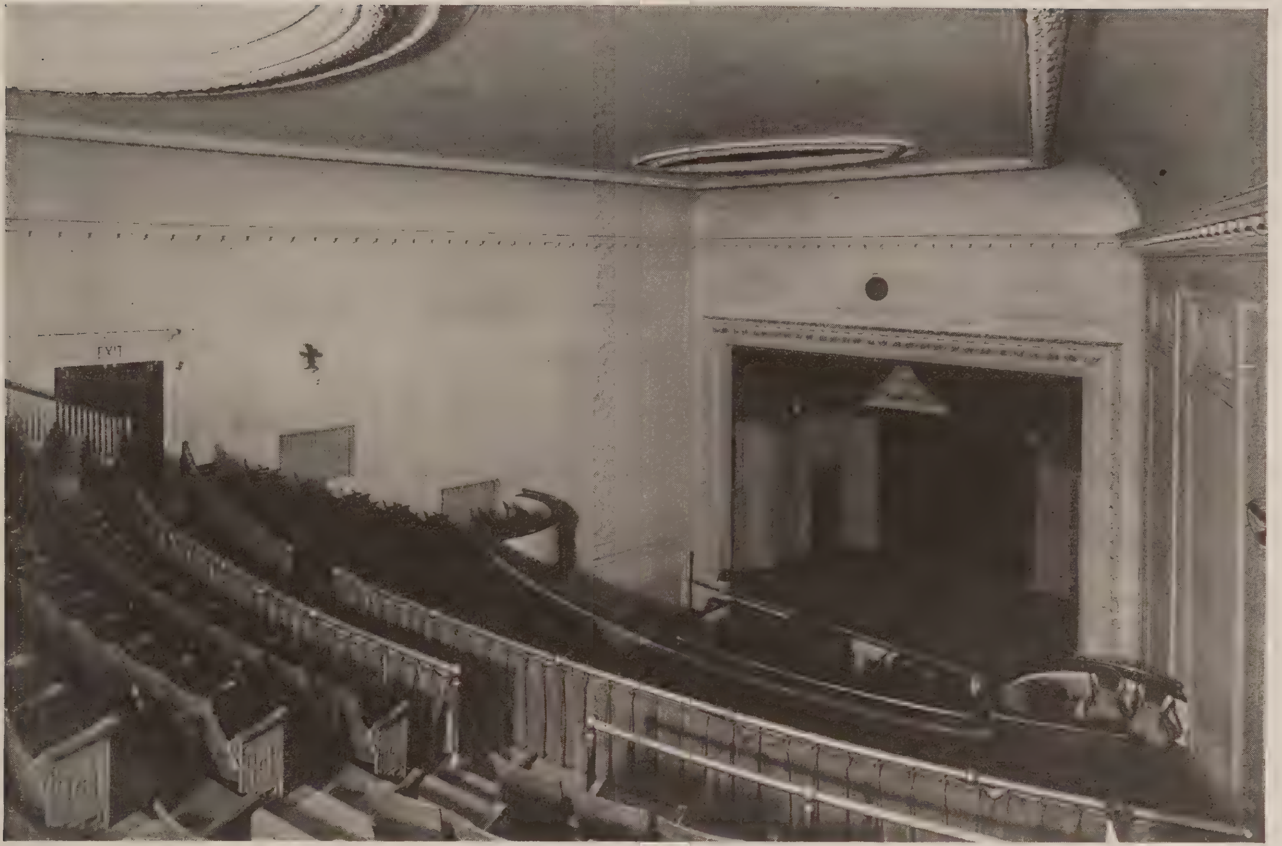


ENTRANCE FLOOR

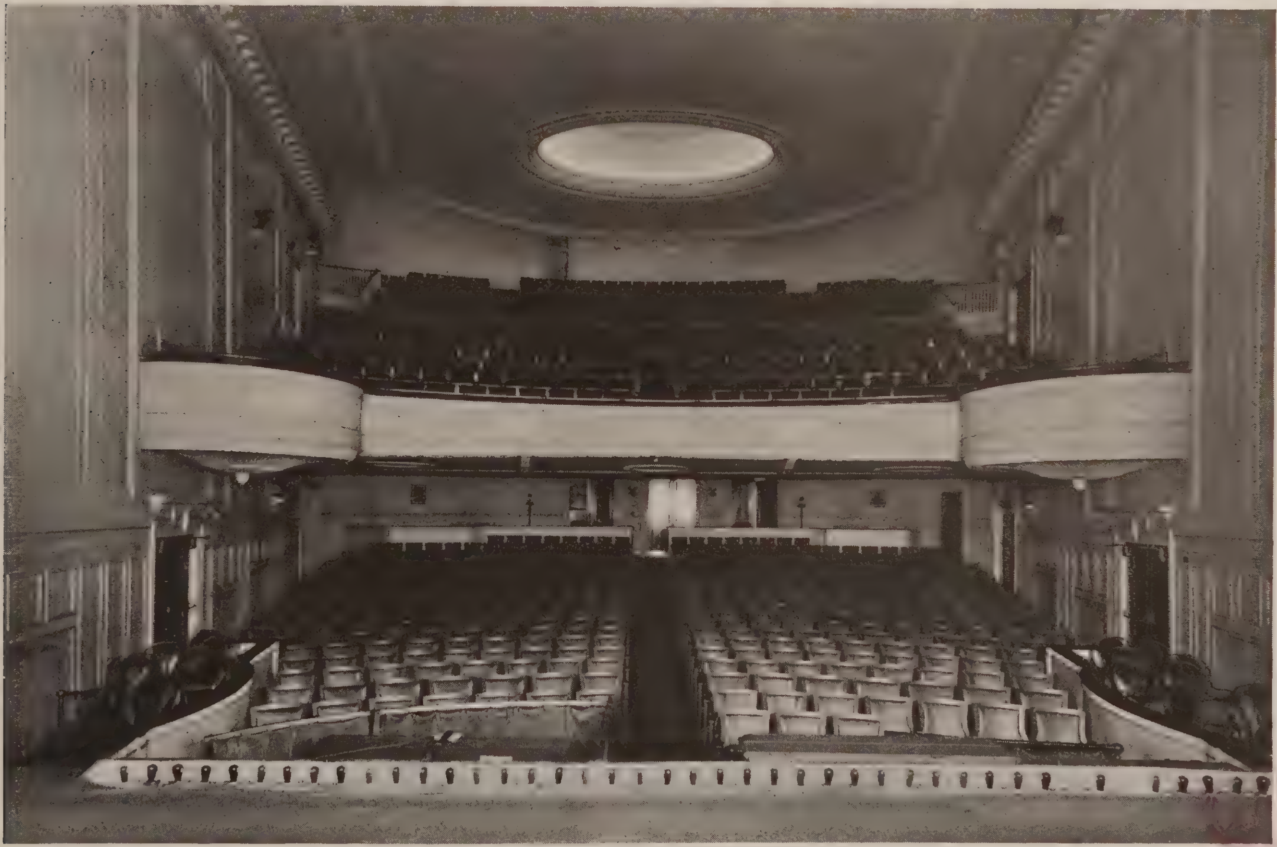
BALCONY FLOOR

PLANS, THE CIRCLE PLAYHOUSE, ANNAPOLIS

HENRY P. HOPKINS, ARCHITECT



THE STAGE FROM THE BALCONY



VIEW OF THE AUDITORIUM

THE CIRCLE PLAYHOUSE, ANNAPOLIS

HENRY P. HOPKINS, ARCHITECT

The Work of Thomas W. Lamb, Architect

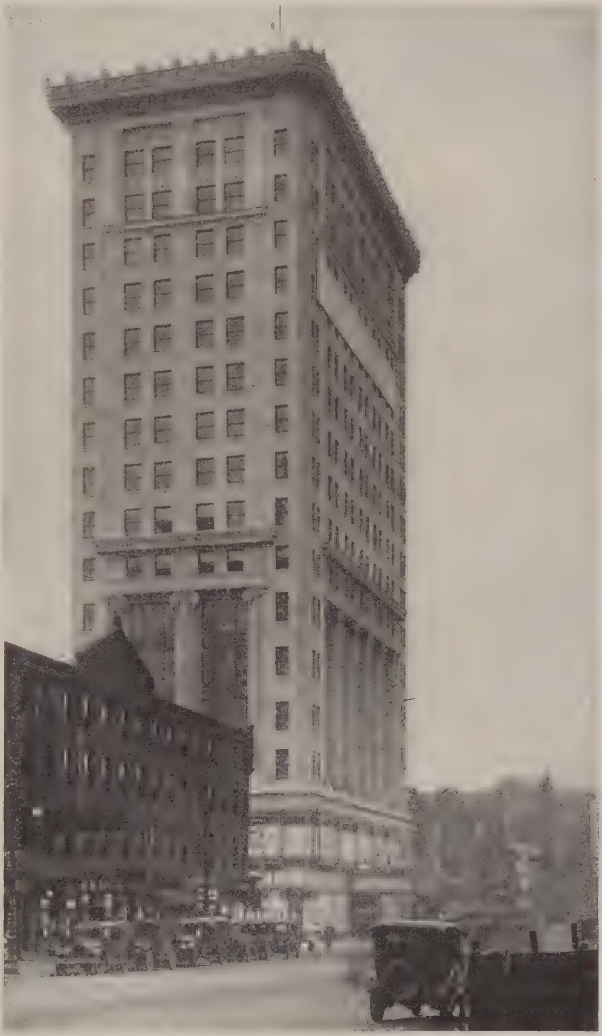
NO consideration of the architectural side of the motion picture theater problem would be complete without a brief analysis of the work of Thomas W. Lamb, of New York. Examples of the work of this architect are to be found in practically every large city in this country, and the years of his experience in this particular field of architectural effort cover undoubtedly a greater length of time than those of any other picture theater architect. All of Mr. Lamb's work uniformly shows care and study, not only in the plans of his theaters, but also in their architectural treatment and decorative furnishings, in which he is preëminently successful.

Although it is now six years since the completion of the Capitol Theater in New York, this theater stands today as perhaps the most successful and magnificent example of the work of this distinguished motion picture theater architect. It still stands as the last word in regard to size, perfection in equipment, comfort and luxury. It has a seating capacity of 5,230, which is 600 more than that of the Hippodrome in New York. Although having such an unusual seating capacity, the aisles and stairways are so spacious, the lobbies so large and the exits so numerous, that the patrons experience no inconvenience or crowding either on entering or leaving the theater. The style of the French Empire, which flourished under the patronage of the great Napoleon, has been successfully used as a precedent for all the sumptuously designed and gorgeously wrought interior decorations. Illustrations, reproduced from photographs, give as little idea of the magnificence of the interior of this theater as does any attempted description. In order to appreciate it, one has to see this truly royal interior, built on a scale surpassing in size and grandeur anything heretofore attempted in picture theater design and decoration. It stands at the height of development.

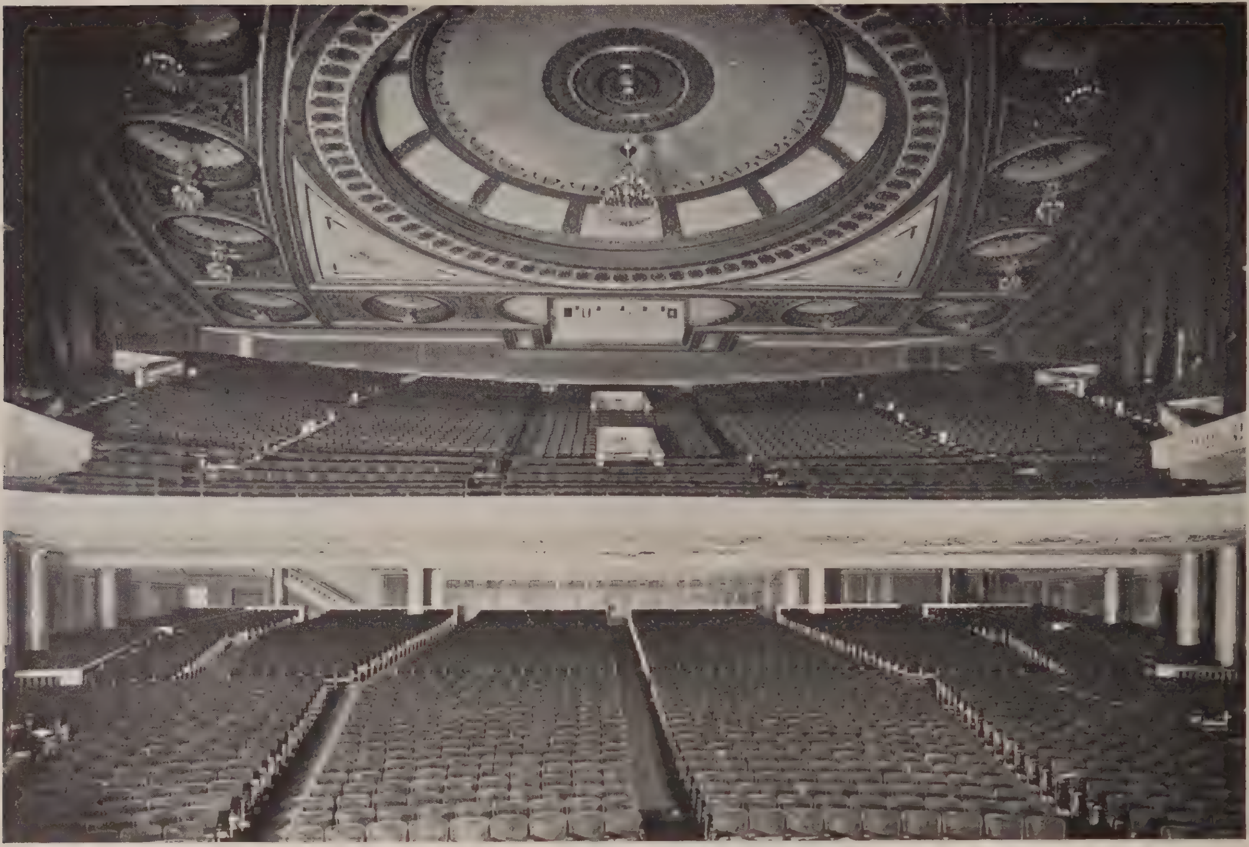
One of the notable characteristics of the interior decoration is the use on a large scale of hanging draperies, made of magnificent blue and gold brocade, which fill the high arches above the proscenium boxes and the open spaces between the engaged columns on the side walls of the balcony. No decorative wall treatment could be richer or more effective than this use of draperies, hanging in loose and graceful folds, which should be more often seen.

In the handling of the plan of this great theater, the same consummate skill is shown as in the designing of the interior decorations. On account of the great depth of the auditorium, the plan diminishes sharply as it approaches the stage and screen. Following the lines of the plan of the orchestra, the great balcony sweeps down to within 50 feet of the stage, providing a seating capacity of 2,500, which is only 50 fewer seats than are had in the orchestra itself. The saucer-curve of the entire balcony is of unusual interest, providing as it does perfect sight of the screen from every seat. A large dome, 64 feet in diameter, surrounded by ten smaller domes, gives great decorative interest to the ceiling, and provides an opportunity for unusual lighting effects. A richly decorated and perforated sounding board, supported by pilasters and entablature of the Corinthian order, forms a tremendously rich enframement for the usual proscenium arch.

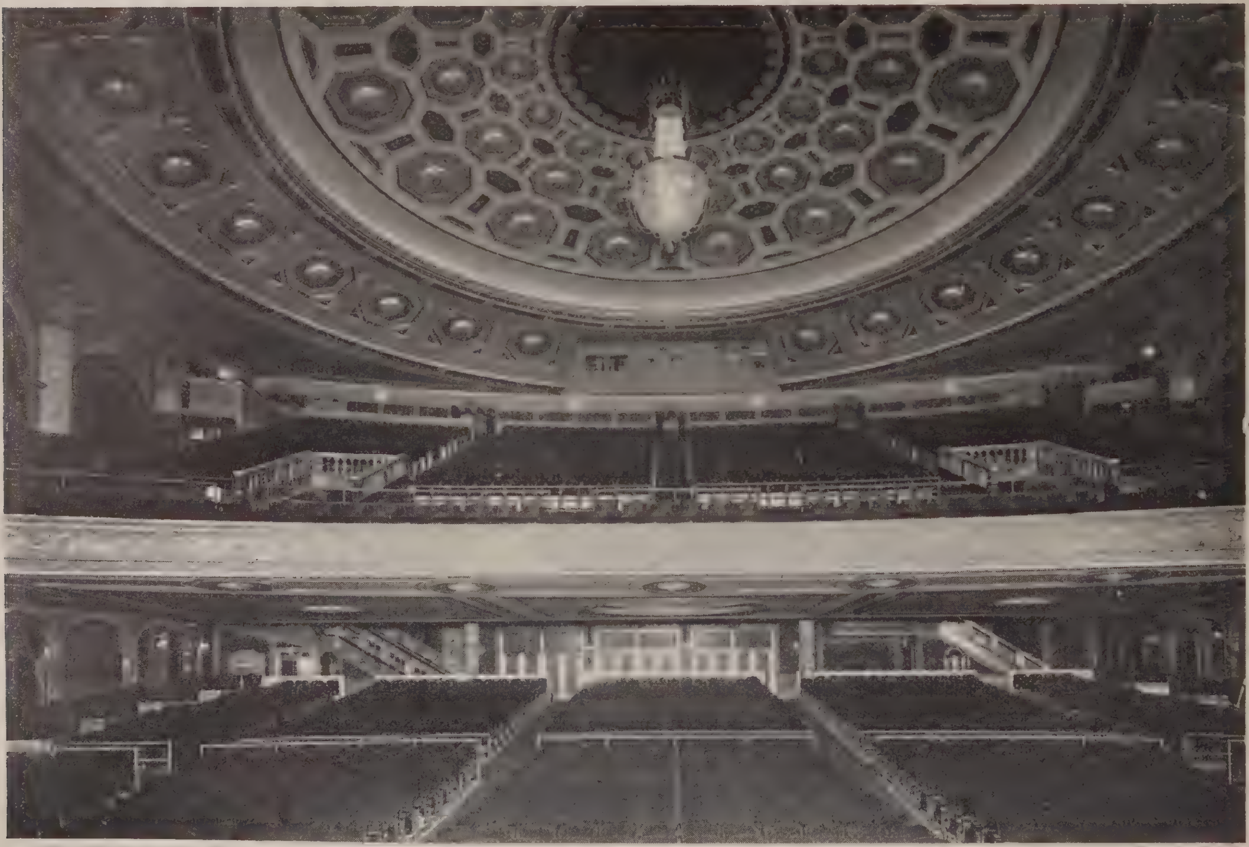
In comparison with the studied magnificence of the Capitol Theater, one of Mr. Lamb's more recent theaters shows, in a somewhat different way, the same skill and success in the handling of the plan and the same unerring judgment in the use of sumptuous decorative effects. This theater is Fox's Theater



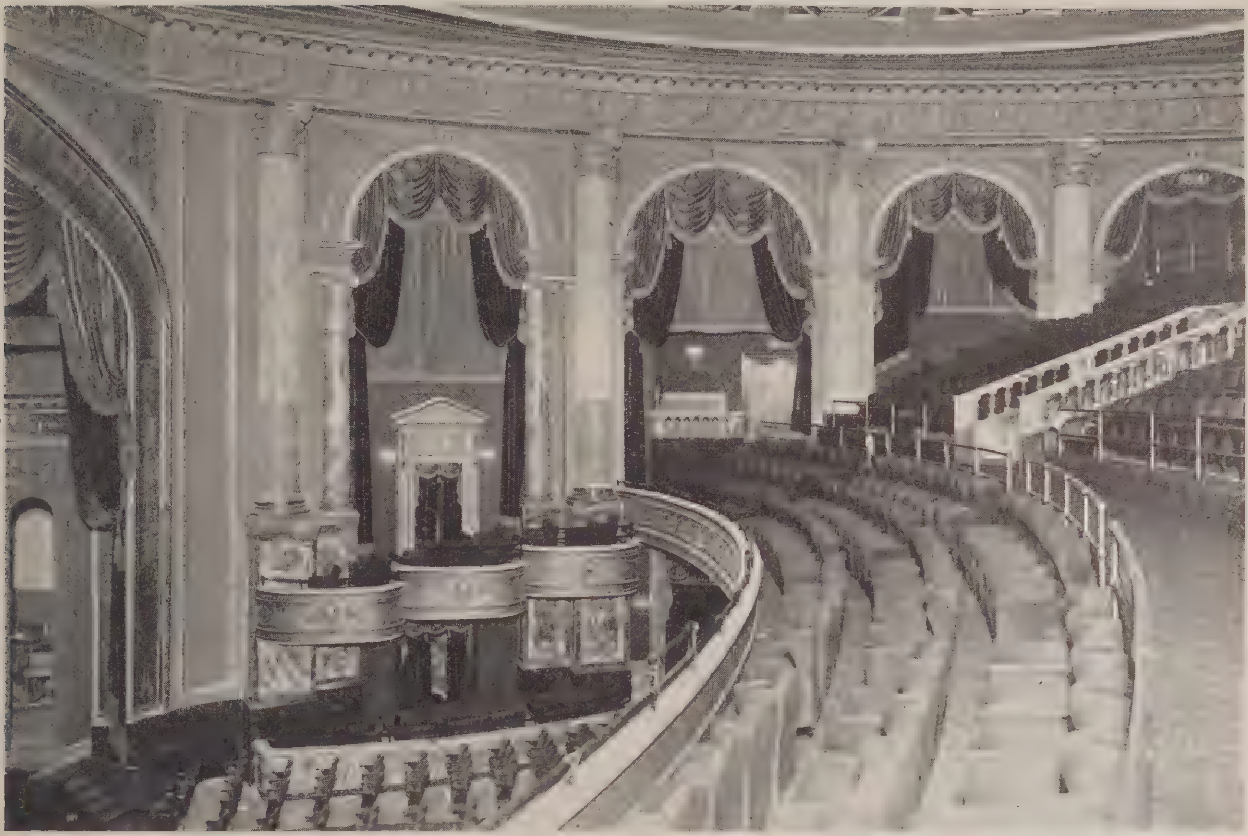
Fox's Theater Building, Philadelphia
Thomas W. Lamb, Architect



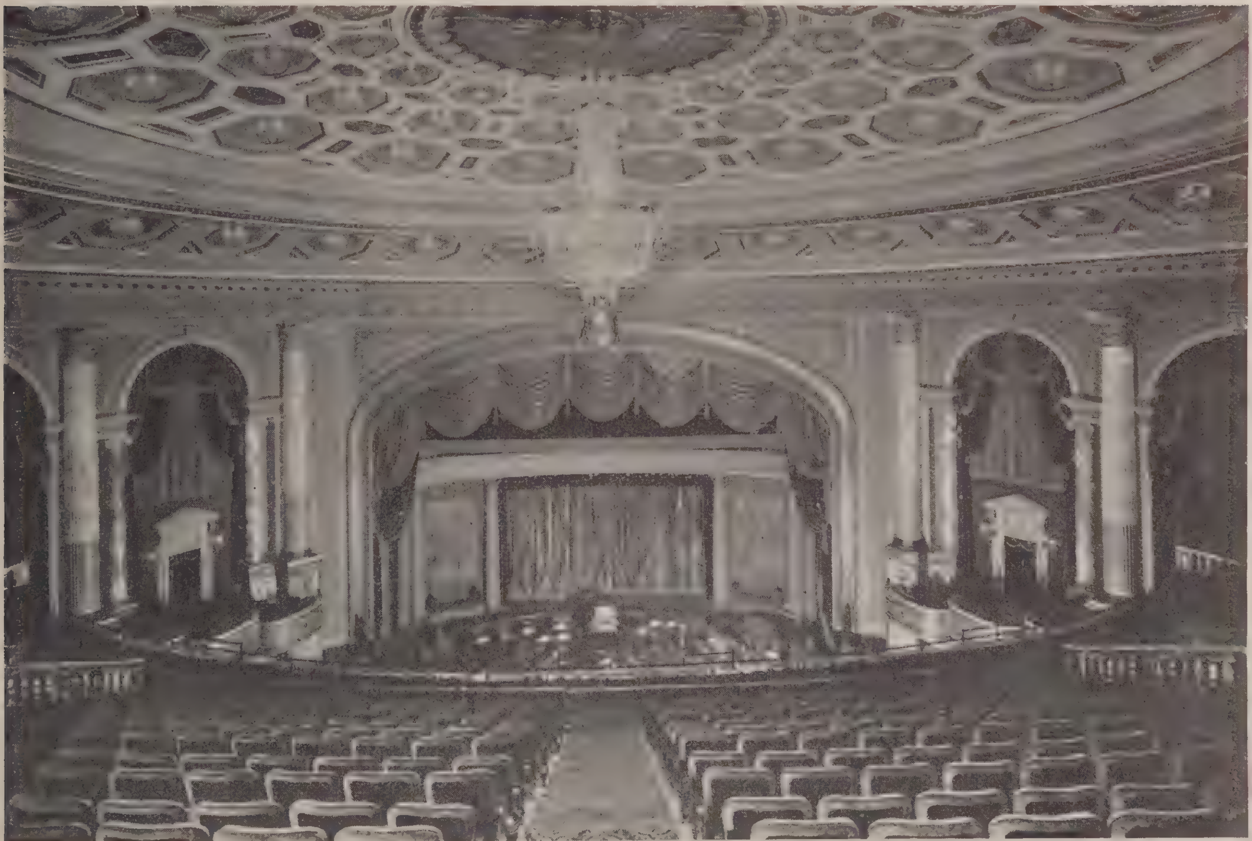
THE VAST AUDITORIUM OF THE CAPITOL THEATER, NEW YORK



AUDITORIUM IN FOX'S THEATER, PHILADELPHIA
THOMAS W. LAMB, ARCHITECT



AUDITORIUM FROM THE BALCONY, FOX'S THEATER, PHILADELPHIA

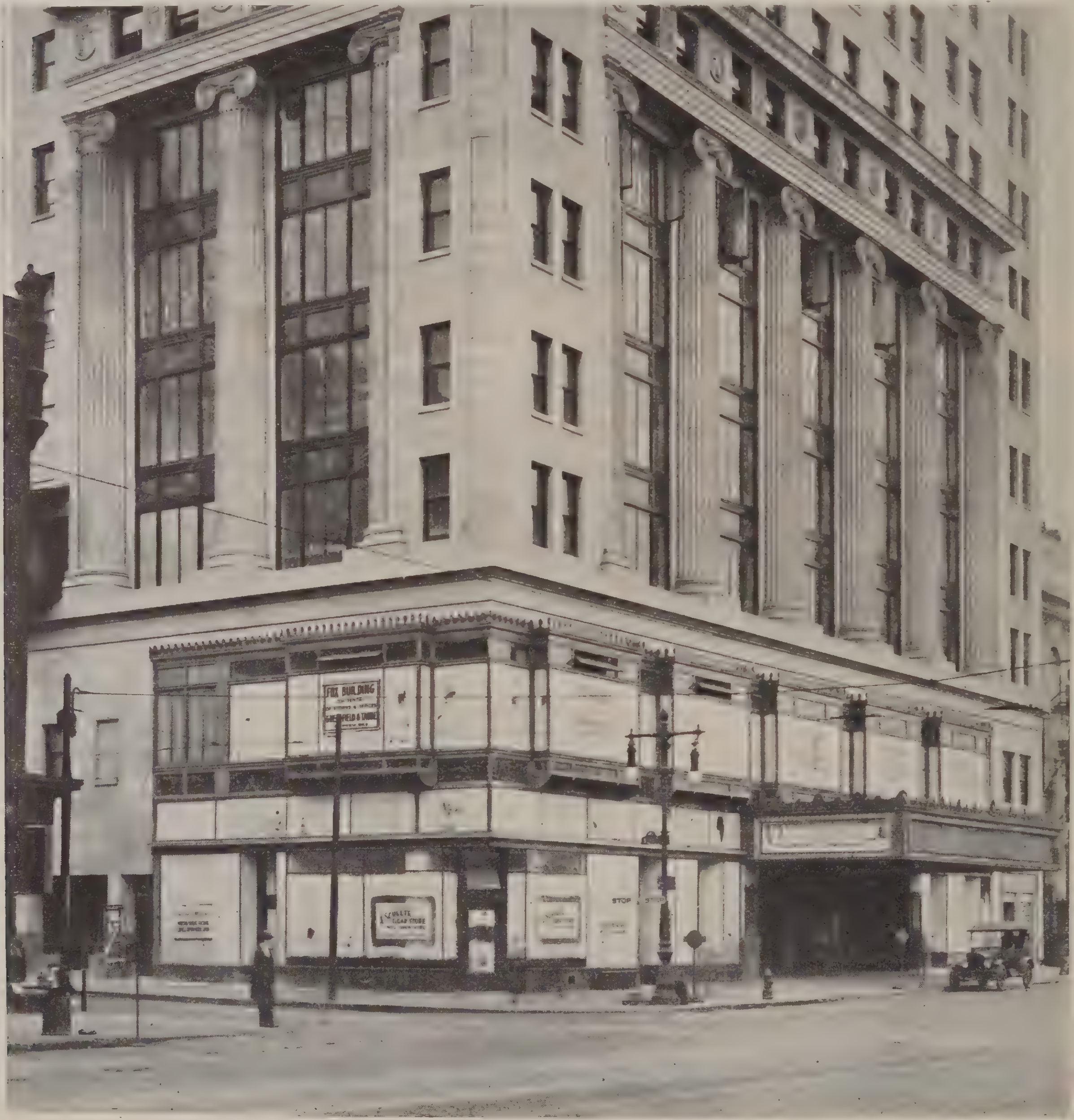


THE STAGE FROM THE BALCONY, FOX'S THEATER, PHILADELPHIA

THOMAS W. LAMB, ARCHITECT

in Philadelphia. Although this theater is located in an office building, the architectural treatment of the exterior design clearly suggests and indicates, in a monumental way, the principal purpose for which the structure is designed. As required by modern economic conditions, shops are introduced on the lower floor of this building, so that the real architectural treatment begins at a considerable height above the sidewalk level. It is a pity that the necessity for a continuous succession of shop fronts usually prevents the architects of office and theater buildings from carrying the architectural design of the buildings down through the lower stories to the sidewalk level, but so accustomed have we become to the incongruity of 20 or 30 stories of masonry apparently resting on one or two stories of plate glass shop fronts that we no longer wonder at or question the propriety of this modern phase of architecture.

Fox's Theater in Philadelphia shows a 16-story building in the Classic style, above the second story of which a colossal treatment of the Ionic order breaks the two street facades to a height of five stories. The interior of this theater, although not as magnificent as the Capitol Theater in New York, shows a pleasing consistency and simplicity in design and decoration. As the ceiling height is lower and the theater smaller than the Capitol, a flat, circular ceiling, slightly domed in the center, extends over the entire auditorium, obviating the necessity of use of the sounding board treatment above the proscenium arch which is found in so many of the lofty theaters. The plan in many ways resembles the Capitol's.



Detail, Facade of Fox's Theater, Philadelphia
Thomas W. Lamb, Architect

Observations on Motion Picture Theaters

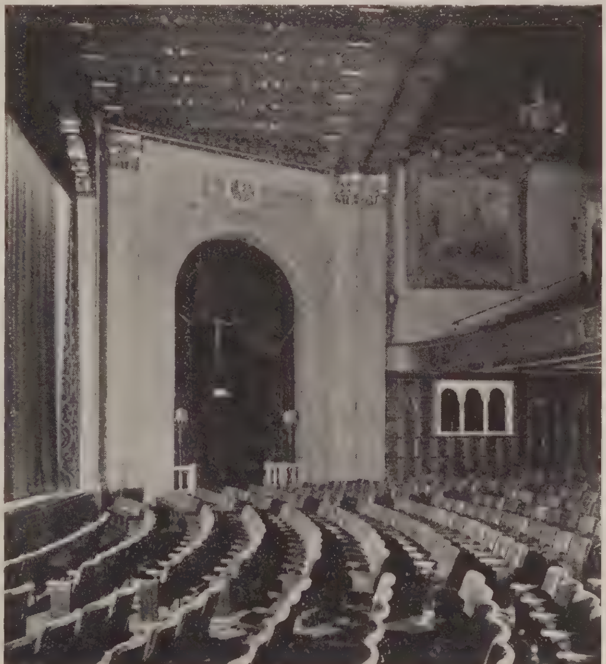
By C. HOWARD CRANE, *Architect, Detroit*

RECOLLECTION calls to mind the days when it was considered degrading to attend the so-called “movie shows,”—how, after a careful survey up and down the street to make sure that no acquaintance was within sight, a nickel or dime was hastily deposited with a lady in a showcase, and then with ticket in hand a hurried plunge was made through the entrance door into a dank, mysterious and black interior! Newspapers of those days pointed out the dangerous influences such places might and probably would exert on the morals of the habitues; parents would admonish their growing children with words to the effect that attending performances of this nature could but lead to perdition!

At that time these palaces of dubious entertainment were usually buildings intended for other purposes and converted into public halls. Frequently the exteriors were adorned after the manner of a side show at the circus; and in the interiors the seats were arranged much as they would be in a slum mission, with flat floors and little or no ventilation. For heating, radiators were strung along the side walls, and often mere body heat was depended upon, with a few electric fans churning the vitiated air over and over. A white sheet was hung at one end of the hall, and the projection machine placed at the other, near or over the entrance. A wavering, flickering something was to be seen on the sheet, with a wailing accompaniment on an out-of-tune piano. No early “movie” performance was complete without an illustrated song or two; a still-life colored photograph projected on the sheet, showing “Daisies in the Fields,” etc., the picture changing with each verse of the song, rendered by a lady or gentleman in a voice charged with pathos.

If space would permit it would be very interesting to narrate the story of the motion picture house from its infancy to its present state of high development, and especially to consider how the architecture of this type of building has kept up with its rapid growth. One of the greatest dramatists and producers of 15 years ago made the prophecy that the silent performance of the screen would, in many ways, replace the presentation of the spoken drama. This prophecy has proved true in several ways. Stupendous productions have been prepared for and shown on the screen which it would have been utterly impossible to present in any other way, and in fact many intimate and important parts which may be readily shown through this medium would have to be described at length by the actors or with many intricate stage settings to carry the story through by means of the spoken drama. Most of our best known actors are enrolled among the large company of those daily seen in one presentation or another in the motion picture houses, and when so bright a star of the theatrical firmament as the late Sarah Bernhardt considered her divine art when presented in silent display worthy of her highest efforts, who dares to comment unfavorably on “moving picture” productions?

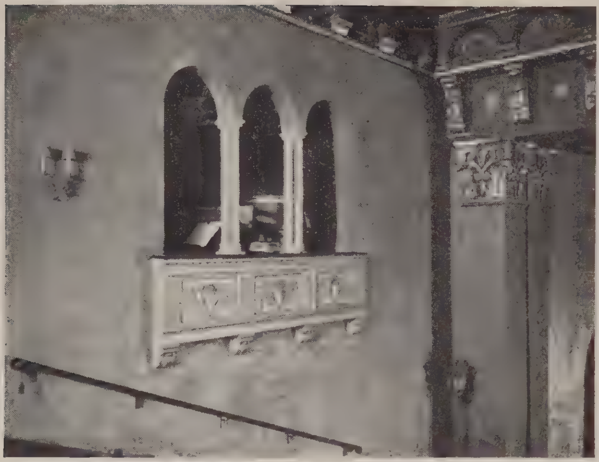
I might say that I entered the field of designing motion picture houses when the industry was in its childhood, as one who early recognized the possibilities of developing a building especially designed as a motion picture theater. It is very difficult therefore to write an article on this subject without recalling the endeavors and struggles of the pioneers in the field, who perhaps in their most optimistic moments could not have imagined that which now even a child may behold anywhere; it suggests the wonders and magic of Aladdin and his marvelous lamp, but the change is now apparent everywhere.



Orchestra in The Playhouse, Detroit
C. Howard Crane, Architect

In general terms, there should be no specialists in the practice of architecture, since the theory of planning and designing is always the same; but achieving success with experience in designing and erecting buildings for a particular purpose will create special aptitude and ability in that particular field, which may be called merely “acquiring technique,” to render better service for that particular work.

The designing and erection of motion picture theaters differ in many ways from the designing and erection of most classes of buildings, first, because building and safety ordinances relating to buildings of this nature are very



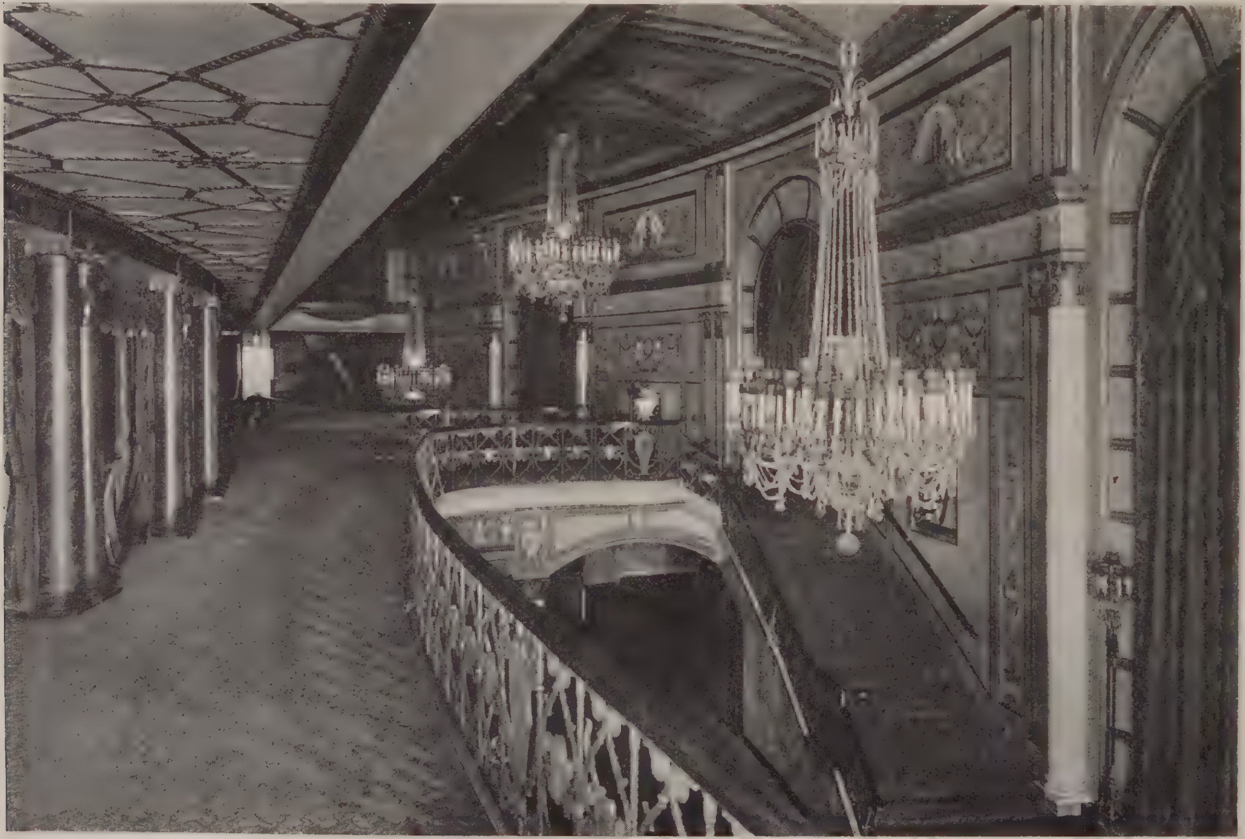
Musicians' Gallery in The Playhouse, Detroit
C. Howard Crane, Architect

rigid, and, second, because the most elaborate decorative effects must be obtained at the least expenditure; third, also, because a theater is for only one possible use,—which is merely to entertain the public.

There are many interesting and alluring bypaths in the study of a motion picture theater,—the mechanical equipment for scenic and display effects, the problems of heating and ventilation, lighting requirements, and the architecture of the edifice. It will be observed that I have not emphasized the importance of any particular division of these alluring bypaths, for the final achievement is to provide for the absolute pleasure and comfort of the patrons, and unless this can be achieved in its entirety, the enterprise will probably prove a failure. To make the audience feel an intimate part of the performance, the production, the architectural and decorative effects, lighting schemes and the musical renditions must form one complete work. The public is very severe in its criticism, and is more likely to magnify a fault than to render due praise to excellence.

Rules and methods for the proper planning and designing of a motion picture theater cannot be propounded and formulated, since every such building constitutes a problem unto itself. If I should be requested to demonstrate any particular method for obtaining the maximum seating capacities, balcony arrangements, sight and projection lines, etc., it could be done only by relating personal experiences and telling of personal experiments, while another architect may arrive at equally good results by using methods peculiar to himself. In this sense the laws are empirical, but the one law to be followed is that a good plan with carefully studied architectural composition will never fail to be recognized as a work of utility and beauty, and therefore a success.

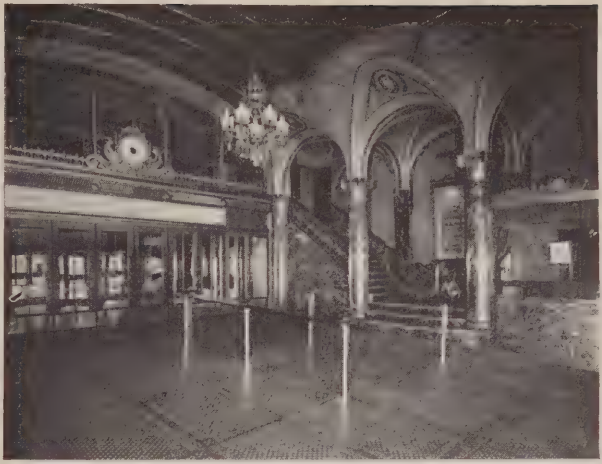
The illustrations included here show several interesting theaters recently completed, three of these illustrations showing various interiors of the Capitol Theater in Detroit, and two other illustrations showing a general interior view of the auditorium,



Stairway and Foyer on the Loge Mezzanine, The Capitol Theater, Detroit
C. Howard Crane, Architect

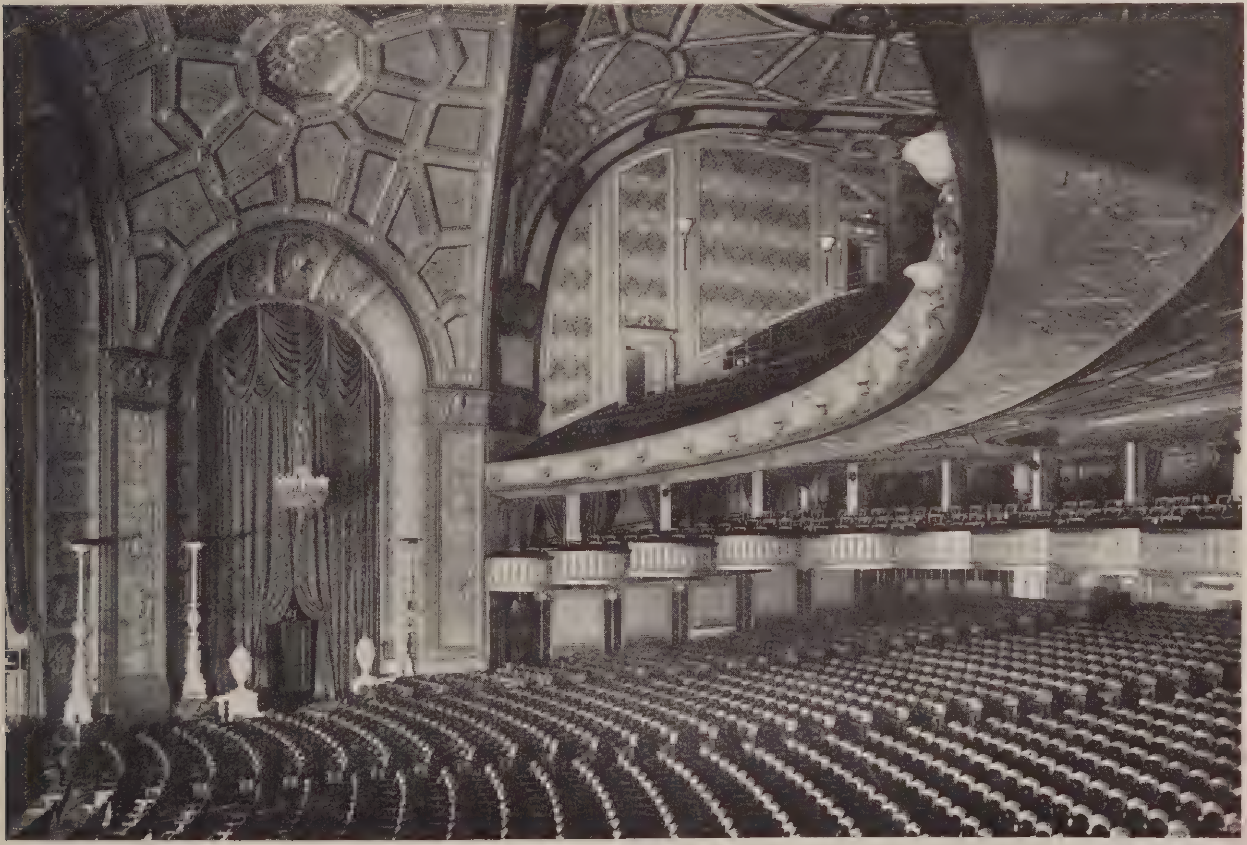
and a small musicians' balcony in the "Playhouse," Detroit, while on page 384 is a sheet of longitudinal sections, showing balconies and sight lines of the State Theater now being erected in Detroit, the Allen Theater in Cleveland, and the Capitol Theater, which has been mentioned already in these pages.

At the right is shown the street entrance lobby, with the main entrance to the orchestra floor and the stairway to the mezzanine of the Capitol Theater. It will be noticed that the ticket booths are placed entirely in this lobby. The holders of tickets to the mezzanine tier boxes enter through the main floor entrance, from which they use the main stairs to the first mezzanine, shown on the preceding page. The balcony patrons use the stairway shown here at the right, which leads to the first mezzanine level, from which they use the flanking stairways to the second mezzanine level, leading to the lower seats in the balcony, from which stairways continue to the upper seats. One very interesting point developed in this theater is the run of the stairways. Those, for instance, at the second mezzanine level are designed with elliptical terminals, lobbies and other interesting points which give the impression that the uppermost seats in the balcony are in no way difficult to reach. I would call attention to the diagram section through this theater. The section on page 384 shows a general view of the interior of the auditorium as seen from the mezzanine boxes. It will be noted how the entrances to the balcony are arranged by center, left and right, reached from the second mezzanine level. Attention is also called to the first mezzanine treatment, which is carried out in the auditorium as a tier of special boxes, obtaining a more exclusive and private seating section, which is very desirable. These boxes continue under the balcony for the whole width of the house.

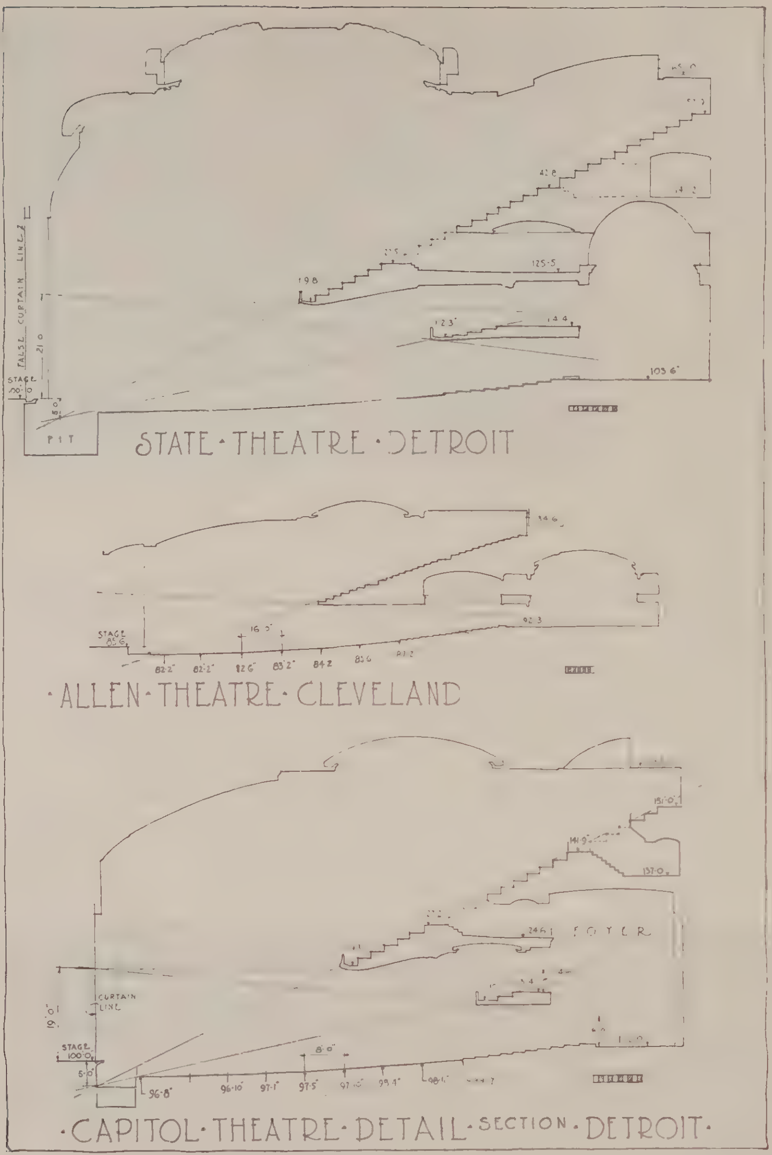


Main Foyer, Capitol Theater, Detroit
C. Howard Crane, Architect

It is impossible to describe the color effects, the lighting and architectural treatment, but the latter can be understood to a certain extent from the illustrations. I wish to express a truth, however, that no



Note Arrangement of Boxes in the Loge Mezzanine, The Capitol Theater, Detroit
C. Howard Crane, Architect


STATE · THEATRE · DETROIT
PIT
STAGE
FALSE CURTAIN LINE
· ALLEN · THEATRE · CLEVELAND ·
STAGE
FOYER
CURTAIN LINE
STAGE 100'0"
· CAPITOL · THEATRE · DETAIL · SECTION · DETROIT ·

matter how charming or delightful any part or detail of the design may be, it must be subordinate to the composition as a whole to be entirely successful.

The women's retiring rooms all possess a charm and intimate touch of a more personal nature. Small delightful spots attractively decorated and furnished, count well with patrons, giving excellent meeting or waiting places either before or after entering the auditorium from the street. For patrons who desire to await the beginning of the next picture these little rooms fit delightfully into the scheme. One particular room is for women patrons, and is decorated and furnished in the style known as Chinese Chippendale. The men's retiring and smoking rooms are quite as well and appropriately furnished. I recall an amusing remark made by a foreign fellow student in discussing the Paris Opera House by Garnier, with its *entre salle,* grand staircase, promenades, restaurants, etc., with these words, "What is it all for, anyway, these foyers, stairs, etc., if it is not to get to a seat as quickly as possible?" This chap only recognized experience, and expressed it well with cold practicality.

One illustration is of the general auditorium of The Playhouse, which is quite novel in its treatment. It will be noticed that the usual proscenium arch is not provided, nor is there any flare around the stage opening. Here a good Italian treatment, in which the wood contrasts effectively against the interior stone work, has been employed. The side arches, which are handled very simply, count more in simple scale than they would have, had any attempt been made to obtain ornamental architectural decoration. For the painted wood ceiling between the stone pilaster bays and the portion of ceiling which might be called the ceiling proper, a charming contrast in levels has been obtained. In this house an innovation has been introduced by providing a musicians' balcony, or perhaps better called a minstrels' gallery, which is used between acts when the house is engaged for spoken drama. If a large production is presented, requiring a larger orchestra, the first few rows of seats and the floor under them are removed, below which is the necessary orchestra pit. The little minstrels' gallery is shown at the top of page 382.

The sectional diagram sheet given upon this page is almost self-explanatory. It is to be noticed, however, that the sections of the State Theater and the Capitol Theater are both provided with mezzanine tiers of boxes, while the sections through the Allen Theater show it to be a typical one-balcony house. It will also be noticed that in the section through the State Theater an unusually deep orchestra pit is indicated, which permits the raising and sinking of the orchestra platform, allowing the orchestra to be concealed while the organist is performing, then to be raised to the level of the stage for the overture or concert numbers. The organ console may likewise be raised or lowered. All sight lines have been shown on this illustration, and the various elevation levels are taken in relation to the stage floor line or datum, 100 feet.

In this brief discourse I have endeavored to omit any rules or principles to be followed in the plan or design of a motion picture theater. If there is one particular type of building which deserves the most profound thought and study and the proper use of materials for desired architectural and decorative effects, it is in a building of this character. As has already been said, the planning of each particular theater constitutes a problem entirely to itself, to which only the most general of rules can be applied.

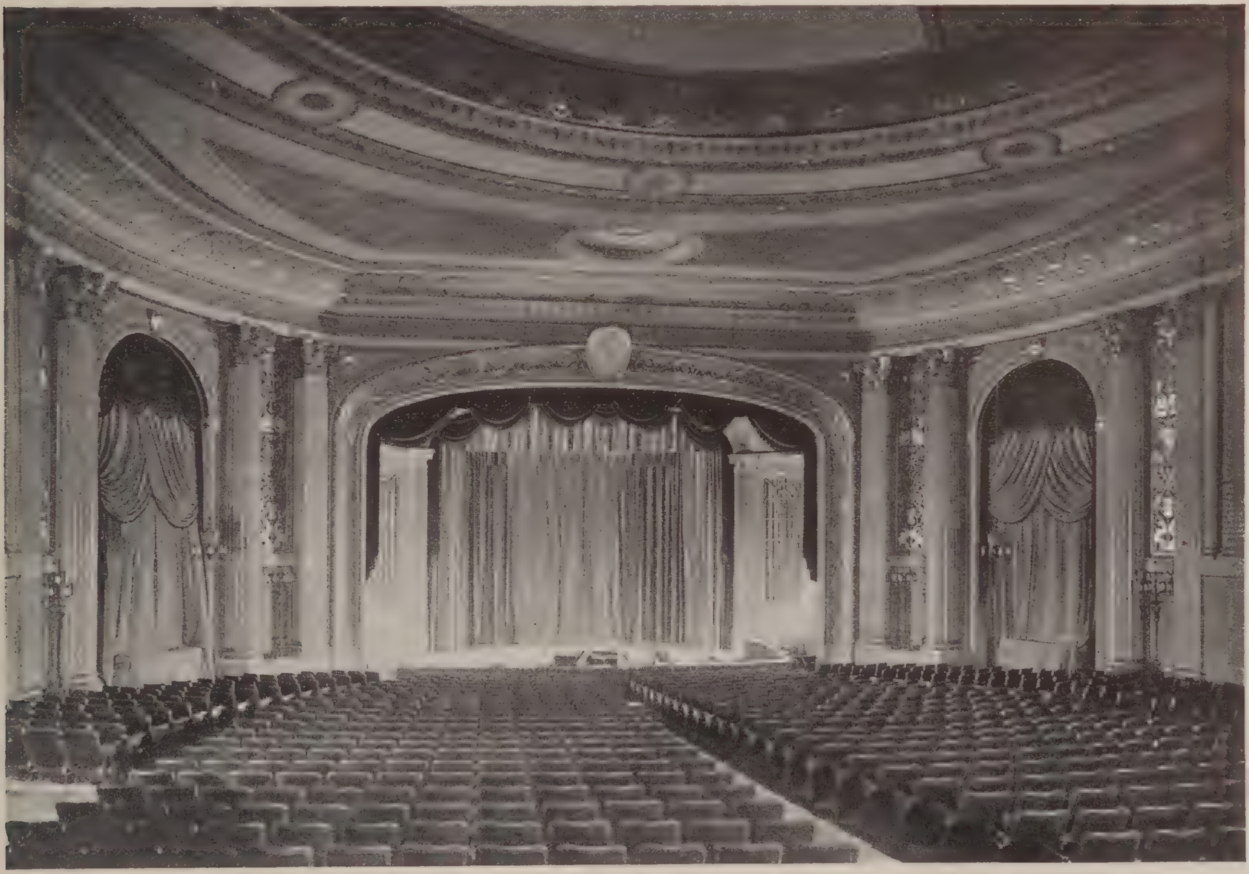
The Planning of the Motion Picture Theater

IN every large city in the United States varied and strict rules of the building code influence the planning and arrangement of the motion picture theater. For the protection of human life in buildings designed to accommodate great numbers of people in one enclosure, the regulations of municipal building codes, fire underwriters, etc. cannot be too strict. They guard the safety of the public.

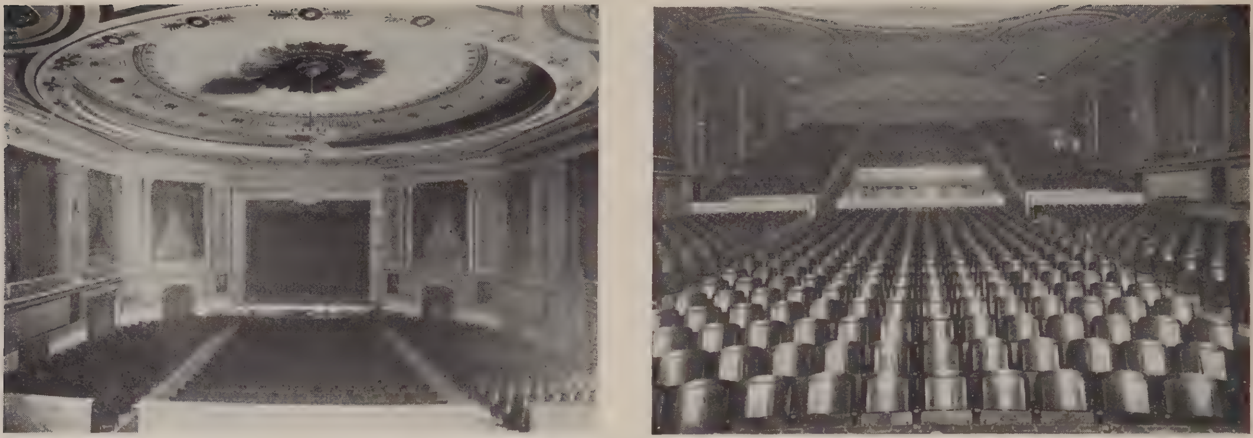
The next factor, after the ironbound building code, to influence the plan and design of the motion picture theater, is its site. The plan of the theater depends largely upon the size and location of the lot. A corner or mid-block lot each requires a different plan arrangement. If located in the heart of the theatrical district of New York or any other large city, the excessive cost of the land necessitates having the largest possible seating capacity, as the investment involving cost of land, building and equipment must be carefully studied to insure a proper return on the money invested. The size of the theater is also determined by the character and size of the population of the locality, as well as by the amount of money available. Cost is usually calculated either per seat or per cubic foot, but usually on the former basis. Variation in cost is due to many causes, chief among them being the location of site, quality and method of construction, and character of interior decorations and furnishings. Cost per seat varies from $125 up to as much as $200, and in some exceptionally magnificent theaters, even higher. A theater completed two years ago in Brooklyn cost only $125 per seat, not including the cost of land, which was low on account of the locality's character.

Once the site is selected and purchased, then comes the question of how many seats a theater shall have. As said before, this depends a great deal upon the neighborhood. Movie theaters pay best in localities such as are found in mining and factory towns and in tenement house districts. The great motion picture theaters found in the hearts of the great cities are located in what are known as "transient districts,"—in other words, the theaters in the Times Square section of New York cater to a transient public in the sense that all patrons come from a greater or less distance to attend performances and picture productions. This is true in any large city.

The type of seating arrangement must next be determined. If the size of the lot permits, the so-called "stadium" type of seating may be employed to advantage, but if the site is small, the balcony type



The Stadium Theater, Brooklyn
Charles A. Sandblom, Architect

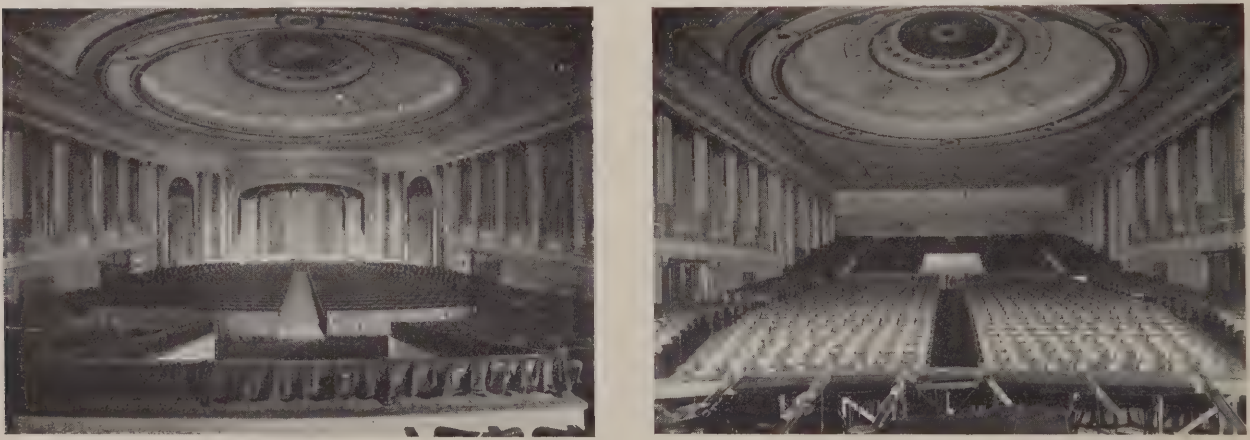


Auditorium of the Broadway Theater, Astoria, New York
Charles A. Sandblom, Architect

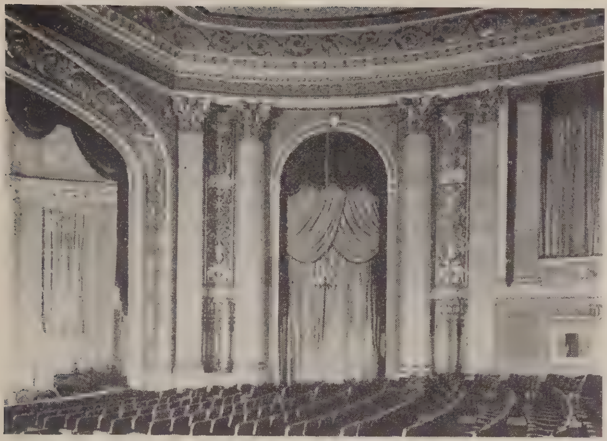
of house is generally required. Theaters located in the hearts of cities require balconies in order to secure a requisite seating capacity. The stadium plan has become popular because it permits a pitch to the rear part of the auditorium which would be too steep to come under the building code regulations governing the pitch of aisles if the auditorium floor were continuous from the proscenium arch to the projection booth. No steps are ever allowed on the orchestra floor to obtain proper height for the rear seats, and the aisles leading to them would be too steep unless steps were used. The stadium type of seating gives the effect of a continuous sweep of the orchestra floor from stage to rear wall, the rear third of which is arranged with steps such as are found in balconies. Two steps are allowed to each row of seats. The building codes of some cities permit a row of only ten seats in a regular balcony or in a stadium balcony, but in New York a row of 14 seats is permitted in both orchestra and balconies, or not more than six seats between any seat and an aisle. The space between seats back to back under the New York law is 2 feet, 8 inches, which makes it possible for people to pass through without the necessity of those who are already seated arising to let others pass. Some cities, however, allow 2 feet, 6 inches between seats, which does require people seated to stand up in order that others may pass. A fair seat allowance, from center to center of arm is 20 inches.

Where balconies are used, the problem of sight lines is one to be carefully studied, as it must be possible for the occupant of every seat to see at least the front of the stage and part of the orchestra. Balconies must therefore not project too far over the orchestra seats, but should be kept as far back as the total desired seating capacity of the theater will permit. The desire of owners to obtain as many seats as possible in their theaters is often responsible for pushing balconies too far forward. If a balcony is brought too far forward, or if it is too steep, the sight lines become incorrect and faulty, and the vision becomes distorted. This is true in both motion picture and "legitimate" theaters.

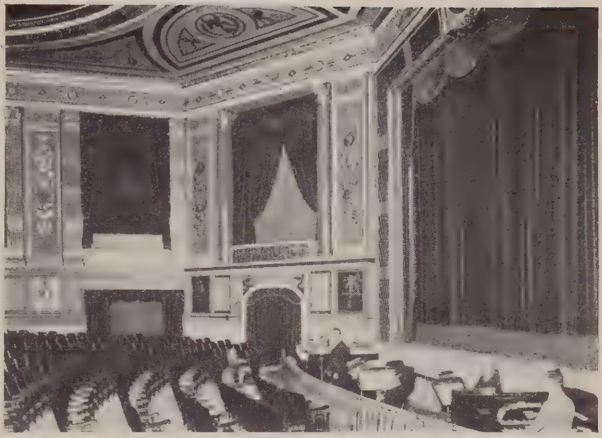
The usual slope is about 14 inches on a two-step rise to every 2 feet, 8 inches, which is the width of each platform on which a row of seats is placed. A balcony seat located more than 50 feet above the level of the stage, or more than one balcony in a motion picture theater, is impractical from the point of view of sight. But in a combination "movie" and vaudeville house, two balconies may be successfully included. Balcony steps are usually 7 to 7½ inches



Auditorium of the Jackson Theater, Jackson Heights, New York
Charles A. Sandblom, Architect



Detail of the Decorative Treatment of the Proscenium and Side Walls in the Stadium Theater, Brooklyn



Orchestra Pit, Proscenium Arch and Organ Balcony in the Astoria Theater, New York

Charles A. Sandblom, Architect

in height, but from 6 to 7 inches is a more comfortable rise for a 12-inch tread. In regard to sight lines in orchestra floors, it is an interesting fact that people see *between* the heads of those in front and not *over* them, but beyond 30 or 35 rows back from the stage there is trouble in seeing between heads if the floor is not properly inclined. It is therefore customary to slope the auditorium floor. This slope begins from 6 to 10 feet back of the line of the stage or rail of the orchestra pit, if there is one, according to the depth of the auditorium. The building codes in different cities regulate the slopes of orchestra floors. In New York the building code permits a rise of 1 inch to every 12 inches, while in Boston a greater pitch to the orchestra floor is permitted. In most cities steps are not allowed in orchestra aisles, and they should be avoided whenever the plan of the theater will permit. When it comes to regular balconies, the pitch permitted by law is so steep that inclined planes for the aisles are impractical, and steps are always used. In width, aisles vary from the front to the rear on auditorium floors. Starting with 3 feet as a minimum width at the front of the orchestra, aisles increase in width at the rate of 1½ inches to every 5 feet as they go back, except in the case of aisles running from exit to exit, where it is permissible to make them of uniform width by adding to the 3 feet required one-half of the increase in width, according to the length of the aisle. In regard to sight, distortion becomes too great at 40° from the central axis of the picture, to overcome which screens are often used, having a slight curve as well as a slant; but it is better, if possible, to avoid making a theater so wide that it is necessary to locate seats beyond a 35° line. This is much the better plan.

In regard to exits, they are determined in every case by the local building code. In New York, if a theater is located in the middle of a block, a court upon which exits must open is required on two sides of the auditorium. If located on a corner lot, an exit court is required on only one side. If the house accommodates over 700 people these exit courts cannot be less than 8 feet wide. Besides two stairways at either side of the theater, regular balconies must have fire escapes serving two exits on each side. Street entrance doors must occupy at least 25 feet in the clear, and no single opening can be of less than 5 feet. In balcony theaters it is necessary to install at least a 3,500-gallon tank on the roof. This, however, is not the case in theaters without balconies, if the water pressure in the street is high enough. Hose racks and standpipes, as well as emergency fire tools, are

Broadway Theater, Astoria, New York

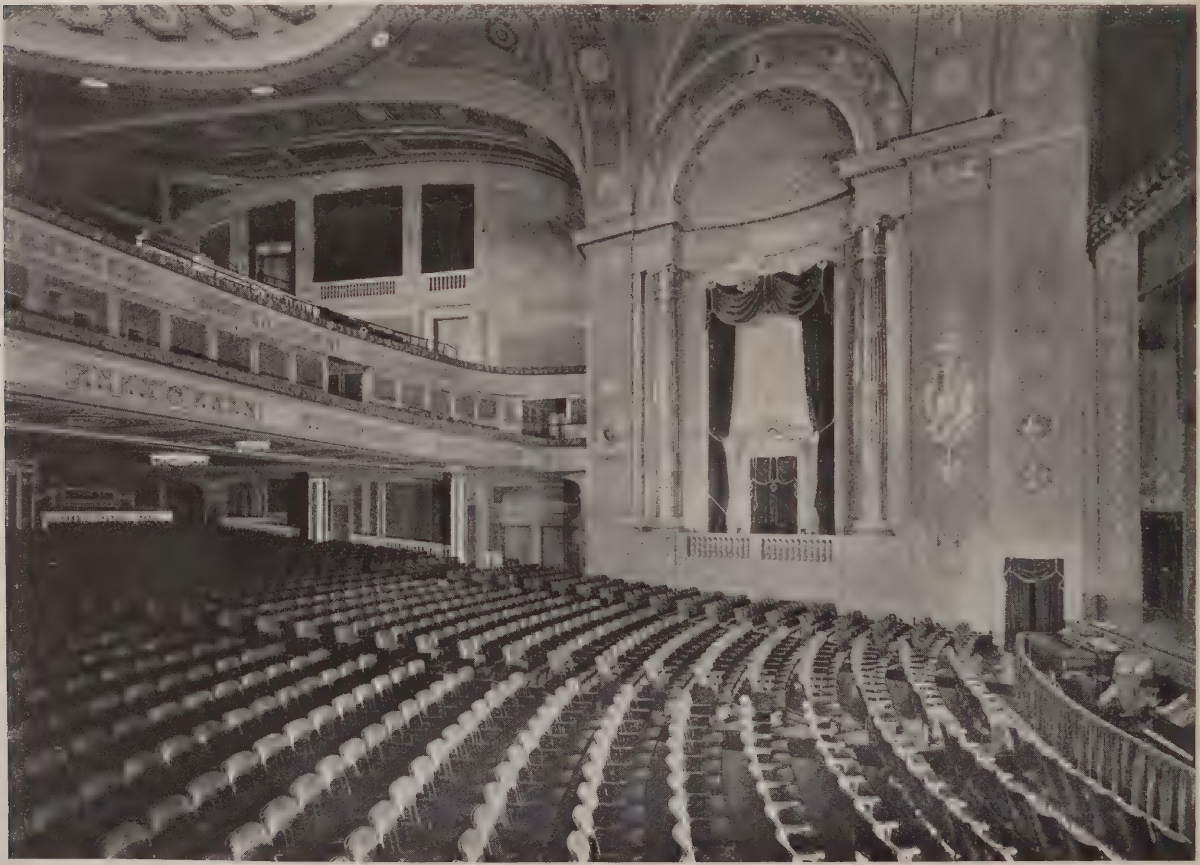
Jackson Theater, Jackson Heights, New York

Charles A. Sandblom, Architect

required in all theaters by both the building code and laws of the fire department. In regard to stairways the code requires that there can be no continuous run of more than 12 feet, without a flat, rectangular landing. In no case are "winders" permitted. The width of stairways depends upon the number of people the entire house can accommodate. The building code in every case determines this width. Balconies require a stairway at each side of the auditorium. Where more than one balcony or gallery is used, there must be entirely separate and independent stairways running from each balcony or gallery above the first to a separate exit or the street level. In balcony and gallery stairways, 7¾ inches is the maximum height allowed for the riser, and 10½ inches the minimum width for the tread, independent of the nosing.

The location of the projection booth is one of the most important problems in the planning of the motion picture theater. It is sometimes advantageous and desirable to locate the projection booth on the first balcony or mezzanine level, instead of placing it in the rear wall of the theater at the back of the top gallery or up in the ceiling cove. The greater the distance of the projection booth from the screen, the more powerful and expensive are the projection machines required to properly project the picture. The quality of the picture thrown on the screen is clearer and richer in tone if the projection machine is as near the screen as practical planning will permit. In the Grauman Theater, Los Angeles, and the Premier Theater, Brooklyn, the picture booths are in each case located in the center of the mezzanine, and in the latter theater with boxes seating six or eight on each side. In the Grauman Theater, the booth is located behind a deep balcony fascia on the mezzanine under the main balcony. This lower location of the projection booth adds greatly to the strength of the picture and the convenience of the projection operators. The ventilation of the projection booth can never be too carefully studied and efficiently worked out. In New York the building code requires that each machine, as well as the room itself, shall be separately ventilated. Usually three projection machines are installed in each booth, located 4 feet on centers. A spotlight machine requires more space around it. A stereopticon is also usually installed in the projection booth of a theater. As the ventilation, cooling and heating of motion picture theaters are fully and carefully considered in another article in this issue of The Forum, it seems advisable to omit here all consideration of these very essential features of the motion picture theater. It might, however, be well to add, in closing, that in the experience of the writer, oil-burning boilers for heating theaters save a great part of the coal bill.

The foregoing notes cover only a few of the essential points necessary for the safe guidance of the architect unacquainted with theater planning.



Auditorium of The Premier Theater, Brooklyn
Charles A. Sandblom, Architect

The Question of Lighting

By I. J. LICHTER, *Electrical Engineer, New York*

ONE of the best known owners of theaters in one of our largest cities engaged an electrical engineer to design his lighting and wiring system, not a great while ago. The engineer went at it from the point of view of having really good illumination, and made his plans accordingly. After he had done this, he turned the plans over to the owner. The owner then called in his fixture contractor, and after obtaining from him a list of fixtures which would supply the illumination desired by the electrical engineer, he promptly proceeded to soundly berate the electrical engineer, who firmly insisted that he had not called for too much lighting. The engineer tried his best to technically convince "Mr. Owner" that he knew what he was talking about. Mr. Owner's reply was one that is worth recording: "I don't question that we ought to have the amount of lighting you say, but will anybody, besides yourself, know it if we don't have it? If an architect visits this building he will look at the architectural effects; if the theater man visits the building he will look at the stage; if the tired business man comes here he wants a comfortable seat and be able to read his program, and he does not want the footlights too high. If the women come here, they look at the tapestries and the wall decorations, they look at the furnishings and the trimmings, all of which are pleasing to the feminine heart and eye. The only one who is going to notice how much lighting we have here will be the electrician, and electricians don't fill our theater!"

This brings me to the point at once. Electrical men, planning theater illumination, must of necessity spend a great deal of time and thought designing that part of their work which is behind the stages or in the projection booths. When it comes to the auditoriums they are of necessity governed and guided by others. Nothing is more important behind the stage, in the dressing rooms, in the booth or other parts of the theater which are not open to the public, than the electrical work, fixtures for securing illumination effects, wiring, observation of the fire laws and state and municipal building code rules. But in the auditorium Mr. Owner, Mr. Architect and Mr. Public are the designing and deciding geniuses. With due respect and regard for these three deciding factors,—inasmuch as in this article we shall speak only of the auditorium and public rooms,—let us now see what various lighting schemes, designs and arrangements these critics favor.

There are three types of lighting which may successfully and appropriately be used in the auditorium of a theater, everything else being in harmony with the method to be used. First and oldest, there is direct lighting, procured by means of chandeliers placed on the ceilings or lights on the side walls, or both; second, there is indirect lighting, which is secured by means of so-called "strip" reflectors placed behind cornices or other features of the interior decorative scheme; third, there is a combination of types one and two. Naturally, where chandeliers are used for ceilings and brackets for side walls, they must of necessity be harmonious in design with the type of architecture employed. A very good architect friend of mine would say: "For a Georgian interior, chandeliers and wall brackets of silver or crystal should be employed; for a Tudor interior, dull brass, and for Italian or Spanish interiors, fixtures of wrought iron, properly detailed, should be used, etc." I do not profess to know whether my architectural friend was "spoofing" or not, because if I knew all about Tudor and Georgian interiors, I should very likely try to hang out a shingle as an architect. But whatever all this means, it is certain that when Mr. Electrical Man has finally determined upon the minimum amount of light that a particular portion of a theater should have, that quantity of light is to be given from fixtures which supply it from so many incandescent bulbs of so many watts.

In all the different theaters I have seen, and in the various schemes which I have studied, I might say that the use of direct fixtures gives a theater a more comfortable, intimate and homelike appearance and requires the use of fewer lamps, costing less to run, than the electrical equipment necessitated by scheme number two. But each year sees less and less use of direct lighting, as our theaters are using more and more the semi-direct forms of lighting. A method which grows more popular each year, is to conceal "strip" reflectors in recesses around the bottom of the main dome, to have illuminated panels in the main ceiling, and in the balcony soffit, sometimes together with direct lighting brackets in the side walls. Very often this same concealed "strip" lighting is used around the proscenium arch, and in several of our very largest theaters concealed "strip" lighting is used to completely outline the entire main ceiling. In addition to the "strip" lighting used in the main dome, a chandelier is often hung from the center of it, so that there are lights below the concealed cove lighting of the dome. From a lighting viewpoint, I believe that this method of illuminating a theater is very poor, since a large percentage of the light is lost. Often decorations that require a great deal of time and thought and money to design and construct, are spoiled by this type of illumination. I have in mind a theater that has a beautiful main ceiling, not only beautiful according to my taste, which I am free to admit is not trained or dependable, but also according to the judgment of architects, interior decorators and others who have seen it, and who are unanimous in saying that it is unusually fine. The center of this ceiling, which takes the form of a dome, and the bottom of the dome itself, are illuminated by means of concealed "strip" lighting. That the dome itself is beautifully finished in gold leaf and painted in wonderfully harmonious tints, you perceive the minute the current in the "strips" is turned on. But what becomes of the main ceiling? All of the lighting from the dome "strips" is *above* the main ceiling, and the moment this wonderful dome becomes diffused with its soft light, the ceiling becomes a drab, flat affair. Recently the management of this theater became convinced of the undesirability of this condition, and suspended a chandelier from the center of this dome, which hangs sufficiently low to allow its bulbs to light up the ceiling above and bring out the wonderful tints and tones in its decoration, doing it full justice.

The theaters which employ "strip" lighting, or a combination of indirect lighting and chandeliers, are again divided into two sub-divisions,—so-called "dramatic" houses, and vaudeville or picture houses. In the dramatic houses, whether "strip" lighting is used or not, a single color, usually white or amber, is used for the lighting. In the vaudeville or picture houses the lighting is usually more elaborate.

Let us see how this is accomplished. The strips which are used in the main dome, around the proscenium arch, etc., generally consist of flat strips of metal, with or without reflectors, and on these strips are placed 40-watt lamps, arranged three lamps to the foot, the first lamp in each case being white, the second red, and the third blue. Thus you have throughout these strips a succession of white, red and blue lamps. Where illuminated panels occur, either a round strip or a flat tin pan is used, having a group of lights divided into red, white and blue. All of these units are arranged on successive divisions called circuits, and the wiring for them is run to a device on the stage which is called a switchboard, and forming a part of this switchboard are units which offer varying degrees of resistance to the passage of the electric current. These units are called "dimmers." In an installation such as would be made in a large vaudeville house, these various dimmers are grouped and controlled by a large geared device having what is known as a "slow motion" wheel. This wheel, having various dimmer plates properly set, is the device which the stage electrician uses to give the wonderful color effects seen in our large theaters. I should like to consider the many ingenious mechanical contrivances which go to make up a theater switchboard, but that would take too much space and is foreign to the subject matter in hand, so that I must drop the subject at this time.

With this "slow-motion" wheel, the operator can cause all the lights in the auditorium to be white (commercial term), and then gradually dim them down until finally they are merged into the palest effect of blue. This blue then grows deeper and deeper, until when it is at its deepest point it gradually turns into magenta, then changes to purple, and after that the blue rays disappear and it becomes pink, finally turning into the red of a brilliant sunset, blending and re-blending at the will of the operator by the turning of this slow-motion wheel.

The electrical apparatus which produces these changing color effects is governed by various authorities, including fire department, state department, building department, National Board of Fire Underwriters and others. Incidentally, while speaking of these several governing bodies, much credit must be given to them for the great strides which have been made in theatrical illumination since they have taken an active interest in theater work. For instance, when you come into a theater, you see "exit" signs over the various doors, which in cities like New York have large letters, reading "exit," and a number, and when you read your program you are instructed to choose the *nearest* door, and in case of necessity to go to this exit. These exit lights must be constructed in accordance with fixed rules. They are so arranged that the current with which they are supplied has nothing to do with that of any other wiring in the building, such as stage wiring or booth wiring. This also applies to the lighting in lounging rooms, men's and women's rooms, lobbies, halls, foyers, corridors or any other portion of the theater to which the public has access, and applies to such lighting in these portions as is usually operated during a performance.

Let us suppose, for instance, that a panic or a fire should occur in a theater, whereby the operator at the switchboard on the stage (in dramatic or vaudeville houses, or in the booth of a motion picture house) should become for any reason incapacitated or be away from his switchboard at the time of a fire; or suppose the main fuses blew out and made this switchboard totally inoperative; then all of these exit lights and the various other lights placed in that portion of the theater occupied by the public would still continue luminous. Thanks to our very wise governing rules, this wiring is entirely for the safety of the public, and is not controlled in any place, excepting one, generally very near the box office.

In various cities in this country legal requirements differ, being more rigid in some than in others. For example, in one large city, exit lighting is entirely done by means of illuminating gas, in another kerosene or candles are required, and in still another city the law requires that every fixture in the auditorium, in addition to such portion of it as is controlled from the stage switchboard, must have sockets which are on this independent wiring, so that it is impossible for the switchboard operator to "block out" any fixture in the auditorium, and in still another city it is required that there shall be emergency lighting for every 25 square feet of auditorium. There are many other things required by various governing bodies in different cities, but this will give the reader some idea of how much thought and study have been used in safeguarding the patrons of our modern theaters.

Use of Indian Motifs in Theater Decoration

CERVIN & HORN ARCHITECTS; W. T. BRAUN, ASSOCIATE

By MARY A. ROLFE

EDITOR'S NOTE:—When the Illinois Art Extension Committee, of which Lorado Taft is the Chairman, was touring the northwestern corner of the state recently, discovery of this theater was made, and all present exclaimed over the beauty of the designs and coloring. Mr. Taft spoke particularly of the unusual restraint shown in the use of the motifs, and of the unusual quality of the organ screen design. This use of decorative motifs is in accord with present tendencies, in decorating public buildings, to make the most of whatever has a local significance or association.

IN 1832 Lincoln, Zachary Taylor and Jefferson Davis were helping the state of Illinois to drive beyond her borders the red men who under Black Hawk, chief of the Sacs, made their last stand at Rock Island. The state won; Black Hawk was captured. In his farewell address to his people, after detailing the Indians' side of the struggle and his cause for action, he said: "Black Hawk has done nothing of which an Indian need be ashamed." Today the city of Rock Island honors the memory of this proud chieftain. Buildings and clubs bear his name. His trails through the woods are marked that boy scouts may follow them, and the local museum is full of rare Indian relics. The city, situated where the Rock River enters the Mississippi, breathes Indian lore, looks out over Indian country, and seems to freely feel the abiding presence of those Indians who so loved the beauty of their home that, having once left, they returned, venturing back to look again upon it,—and thus perished!

It is not, therefore, by chance that Benjamin Horn, of Cervin & Horn, architects, has decorated the Rock Island theater after the Indian manner. Named the "Fort Armstrong Theater," in memory of the old fort from which the white men marched against the Indians, it breathes in every color and ornament the spirit of those first beauty-loving inhabitants. Years of listening to Indian lore and many patient hours spent in museums have resulted in a theater unique in its decorative scheme—a most refreshing contribution to architectural decoration. Color and design have been used with lavish variation because the Indian motifs were as varied as Nature's own, from which they were copied; but they have been used with restraint,—the combined product of cultivated white taste and Indian instinctive respect for Nature's forms.

Detail of the Entrance Lobby

The motifs beloved by the Sacs and Musquakies were those with which Nature surrounded them. The flower that bloomed by the tepee door became the decorative border for the ceremonial dress, and from it was copied onto the walls of the theater. Over the outer doorway and around the lobby runs a frieze patterned after the leaf and butterfly design on a Musquakie breech cloth. The head of an Indian god breaks the frieze over the door. Around its neck are suspended a pair of birds' feet and an arrow symbolizing the hunter. A pair of wings recalls the Indian dance, which was accompanied by the waving of wings. The turtle, sacred to the Indian, is pictured in the form of a wooden box to hold sacred instruments. Indian dancing masks, grotesque in form and vivid in coloring, break the frieze on the side walls. Above the frieze runs a border of the water grasses which grew along the banks of the Rock River. The ceiling band was copied from an Indian garter. The lights for the lobby are done in parchment and bronze, the parchment painted with a conventionalized design of birds and native foliage.

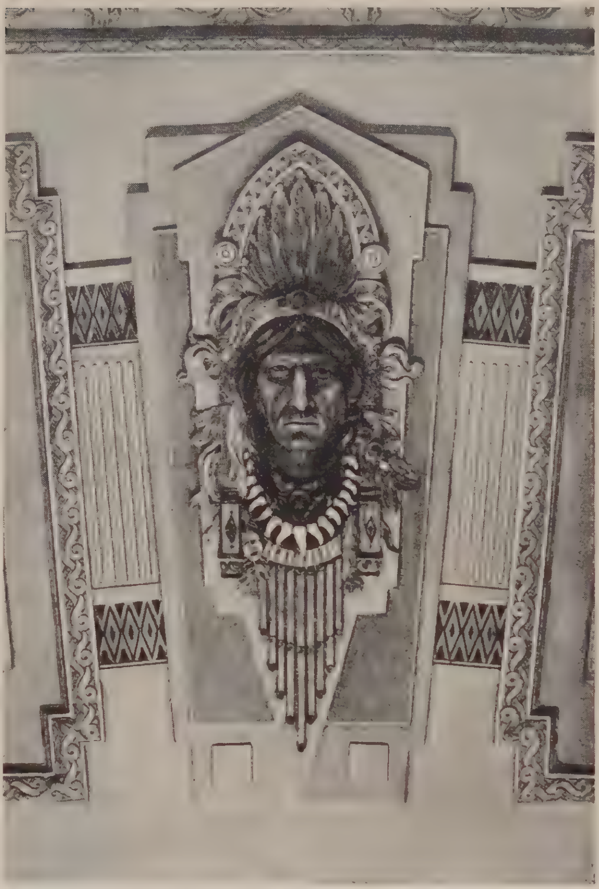
The main foyer has a broad frieze of grape leaves interwoven with the Swastika. Lambrequins of Indian red with bands and fringe of Indian blue mark the openings to the auditorium. The mezzanine foyer is ornamented with a dandelion design from an Indian shawl. A border of Indian corn, in clusters of ears, edges the well of the mezzanine.

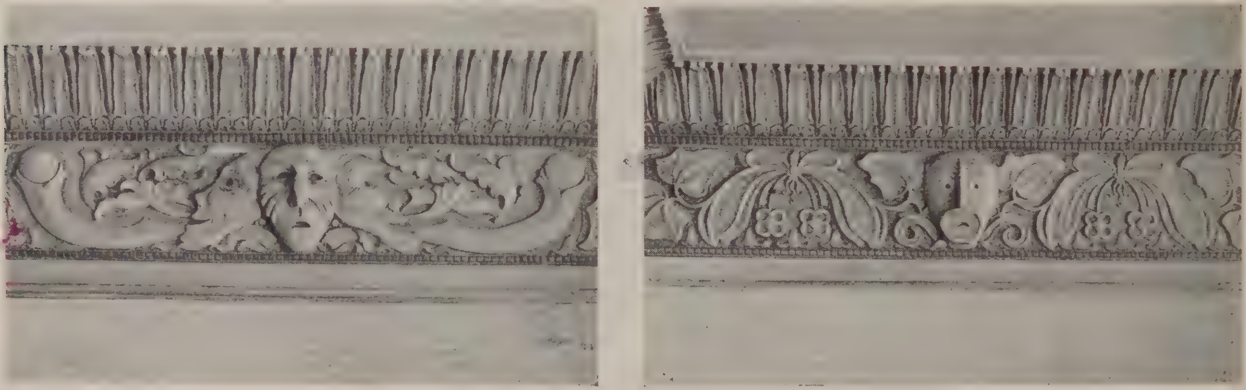
The stage curtains of blue bordered with rose carry the double-headed hawk design. A series of strange coffin-like Musquakie motifs, composed of Indian poles and winged hawks' heads, forms the decoration for that part of the proscenium arch which is next to the curtains. Outside of that runs a wide border of arrow heads. Above, three Indian chieftains look down upon the house dedicated to the memory of their passing. Between them golden screens of Indian reeds and ears of ripe corn hide the lighting bulbs.

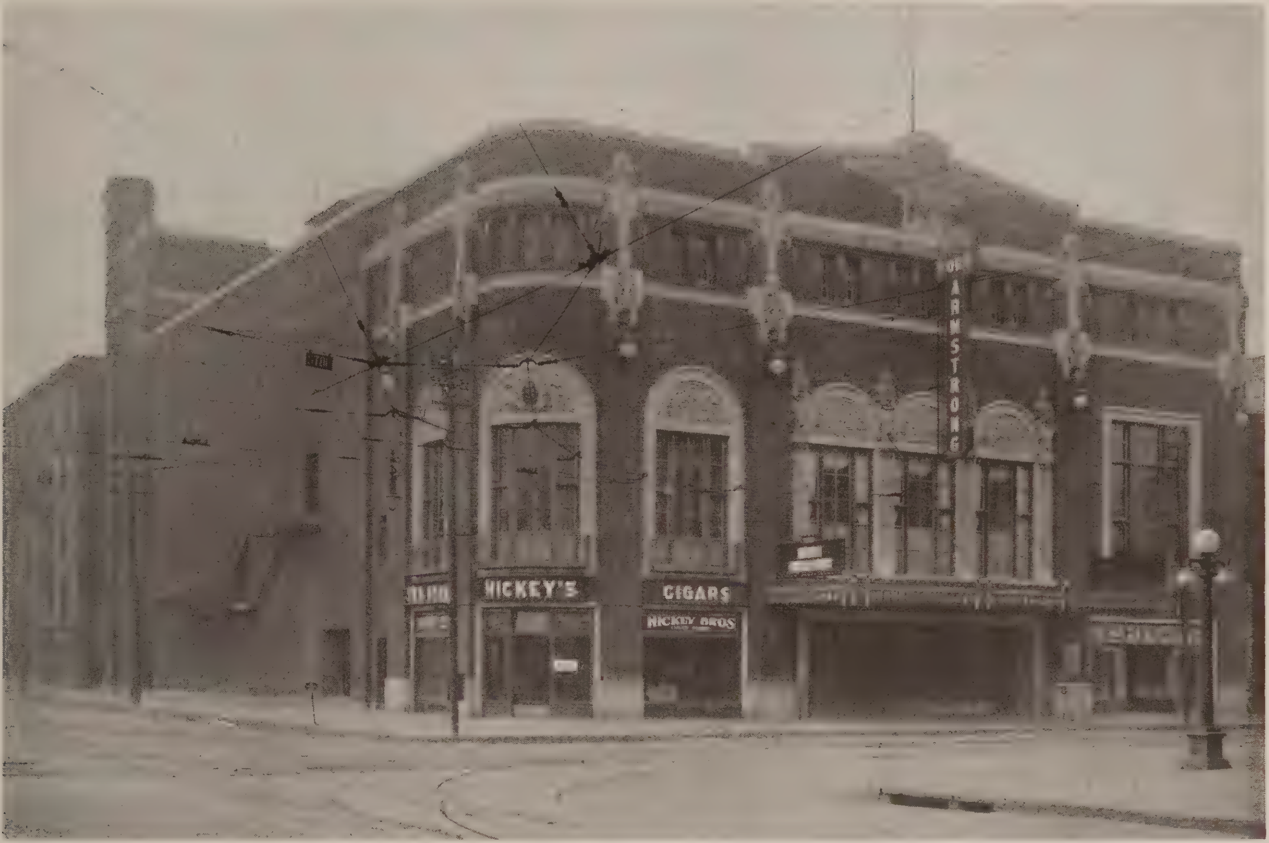
The organ grille on the right and a companion grille on the left of the stage carry the same reed and corn designs surmounted by winged owls' heads. Beneath these grilles are delicately wrought brackets enclosing panels drawn and colored in the delicate patterns and soft shades of old Indian shawls. Similar shawl designs form panels on the front and rear walls and along the side walls. The frieze which breaks the side walls is of birds' wings, blue beads and owls' heads. Small Indian heads surmount the pilasters—guardians for their chieftains. The upper wall panels carry Indian shields. The ceiling beams are pathways for curling serpents, separated from one another by quivers of arrows done in green, gold and red. The dome of soft cloud coloring is broken by a band of intertwined serpents, red and white on the inner curve, and blue and gold on the outer curve, the design adapted well to the requirements.

The wall panels and the backgrounds for the friezes are of a yellower note than is consistent with Indian design. This was made necessary by the need for reflected light. It is offset by the multicolored lights around the organ screen and by those which flood down from the wide grilles between the heads of the chieftains, giving to the end of the stage a bonfire lighting effect which easily evokes the memory of Indian days. Thus the ghosts of those days walk in this castle, built years later to their memory, and in their honor.

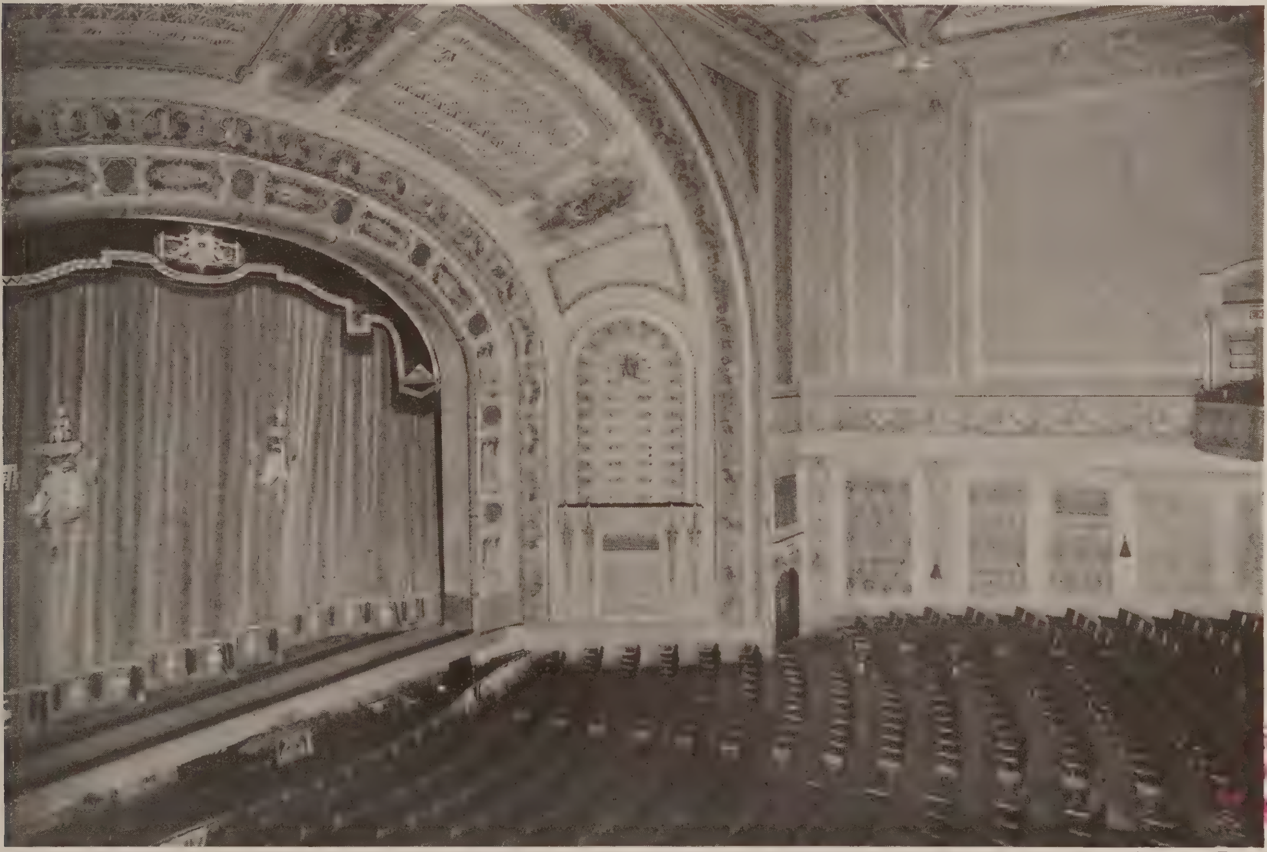
The effect of the interior of the auditorium as a whole is remarkably bright and cheerful. The gay coloring of the Indian designs, against the yellow background of the walls and ceiling, makes a happy contrast. Although the general scheme of the architectural treatment of the auditorium is much like that of any other modern theater, a deep receding arch meeting a heavily enframed proscenium, and a ceiling showing the typical saucer-dome effect, the impression derived from this theater is quite out of the ordinary. It is certainly interesting to find decoration derived entirely from Indian motifs used throughout the interior in a most orthodox and accepted fashion. Indian heads form the capitals of the pilasters on the side walls, as they also ornament three of the principal panels in the proscenium arch. So oriental, however, is the effect produced by this consistent and complete use of ornamentation derived from Indian precedent, that it seems probable that all of the primitive races, Eastern as well as Western, derived their details from what they saw about them.


Indian Head Ornament Used as a Feature of the Proscenium Arch Decoration


Indian Masks Used in the Plaster Frieze of the Lobby of the Fort Armstrong Theater, Rock Island, Ill.



FRONT ELEVATION



AUDITORIUM AND STAGE

(Plans on Back)

THE FORT ARMSTRONG THEATER, ROCK ISLAND, ILL.
CERVIN & HORN, ARCHITECTS; W. T. BRAUN, ASSOCIATE

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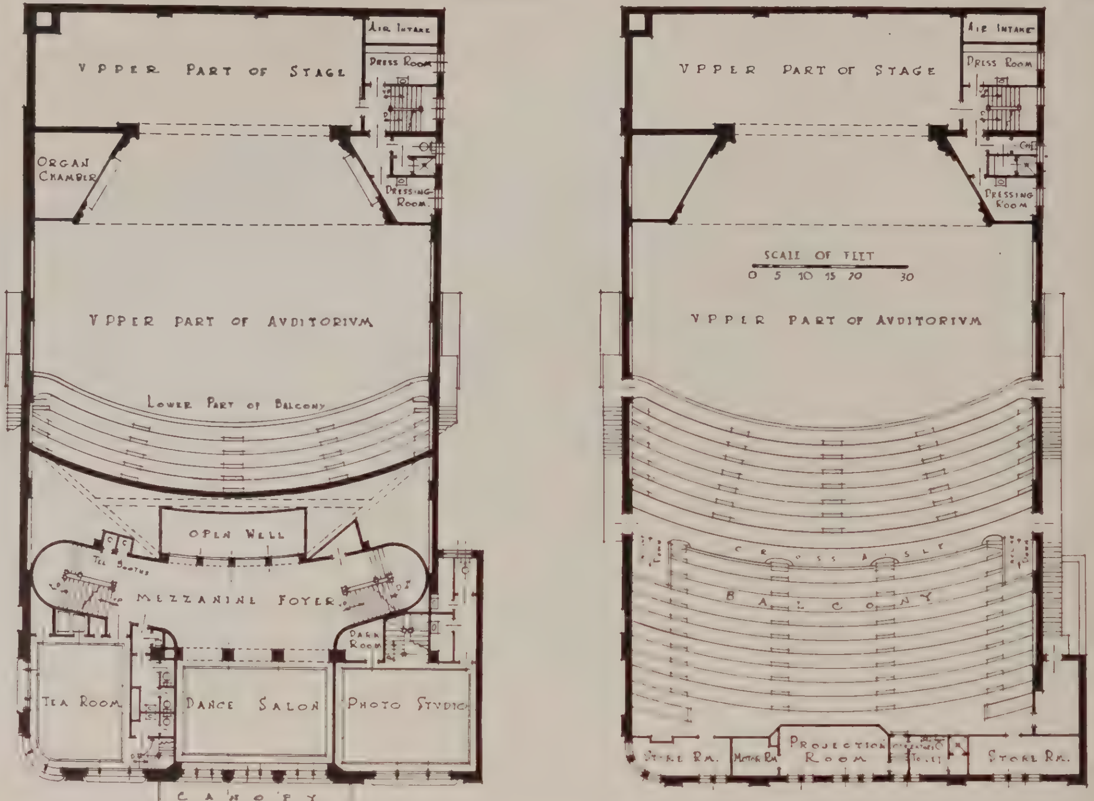
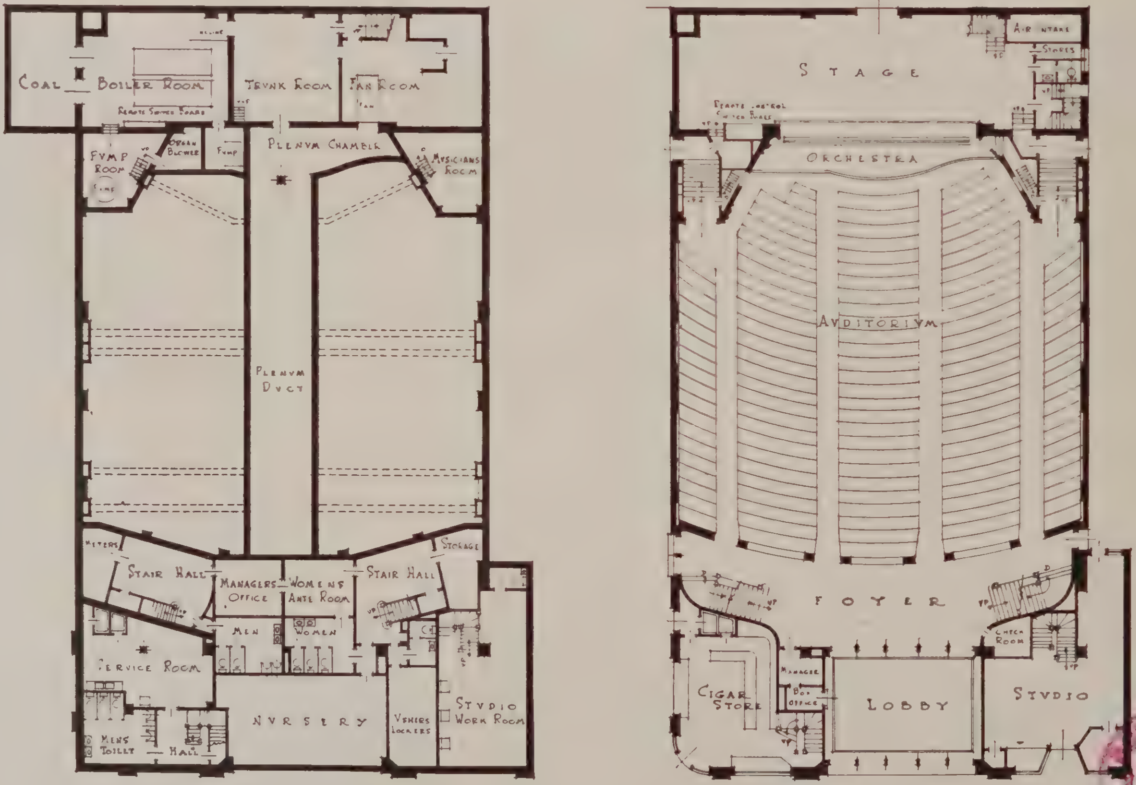


MEZZANINE FLOOR PLAN

BALCONY FLOOR PLAN



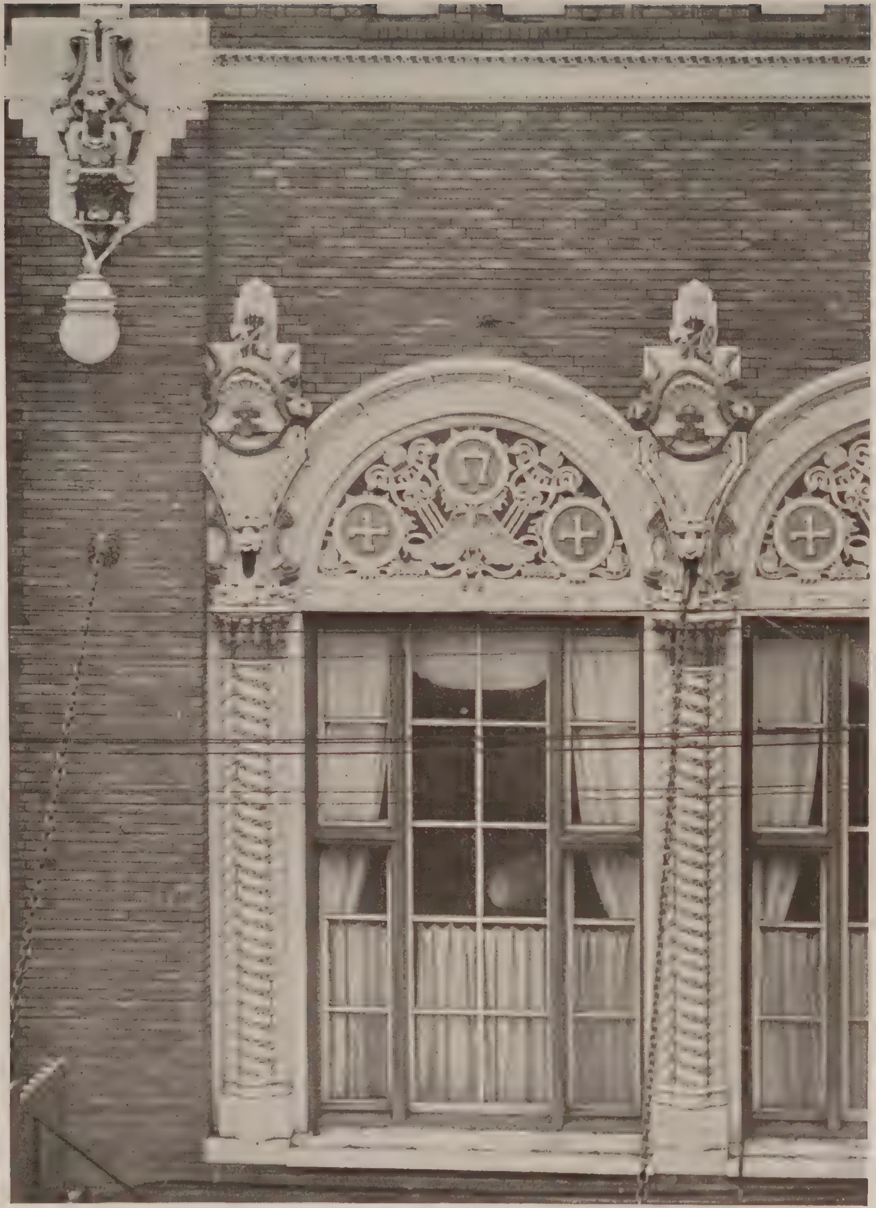
BASEMENT FLOOR

MAIN FLOOR

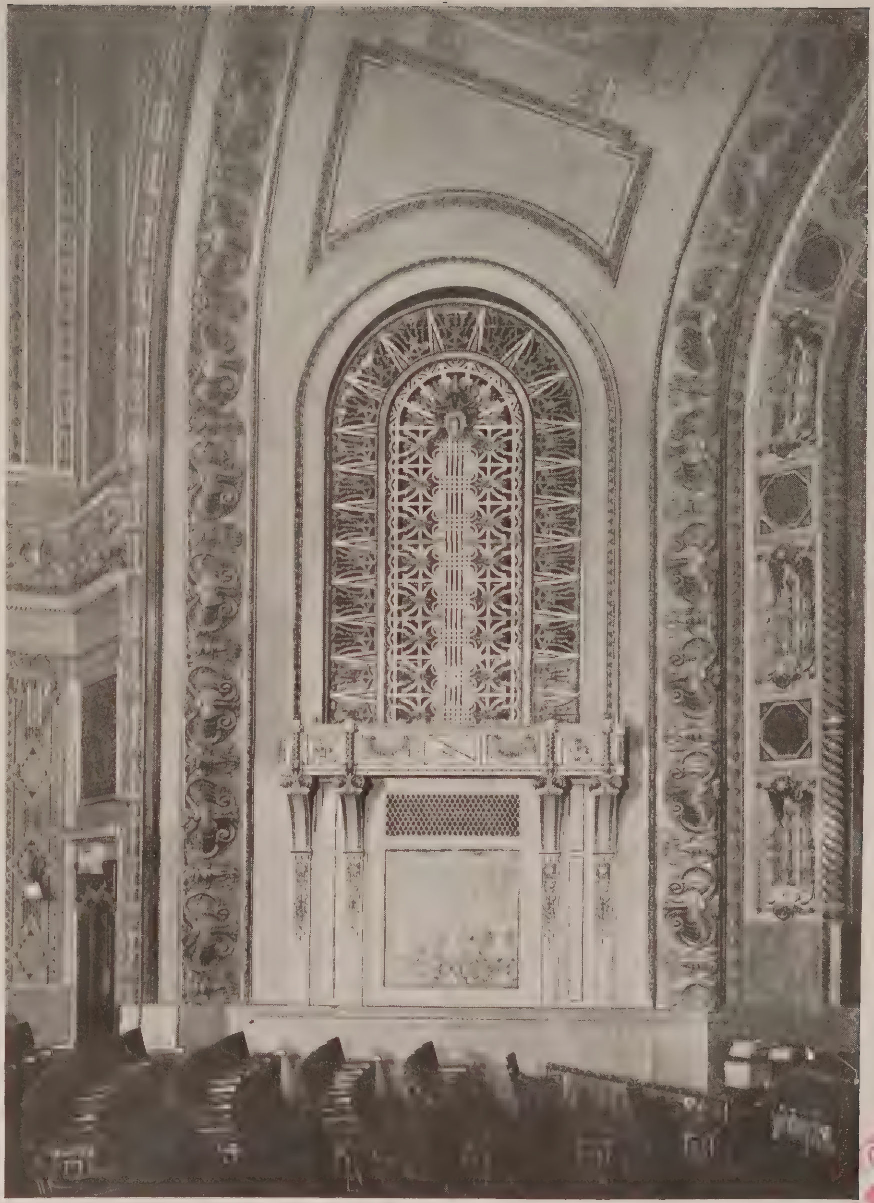
PLANS, THE FORT ARMSTRONG THEATER, ROCK ISLAND, ILL.

CERVIN & HORN, ARCHITECTS: W. T. BRAUN, ASSOCIATE

BOSTON PUBLIC LIBRARY

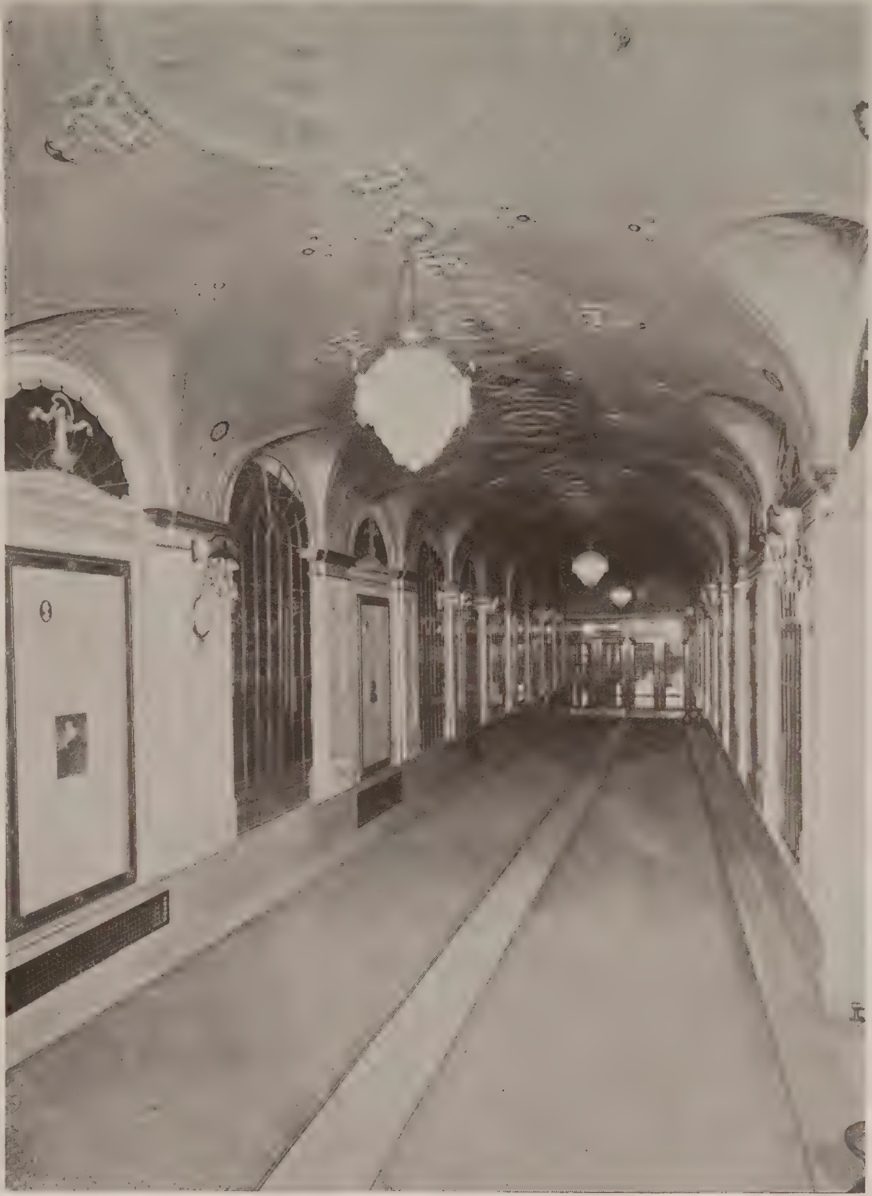


TERRA COTTA DETAILS

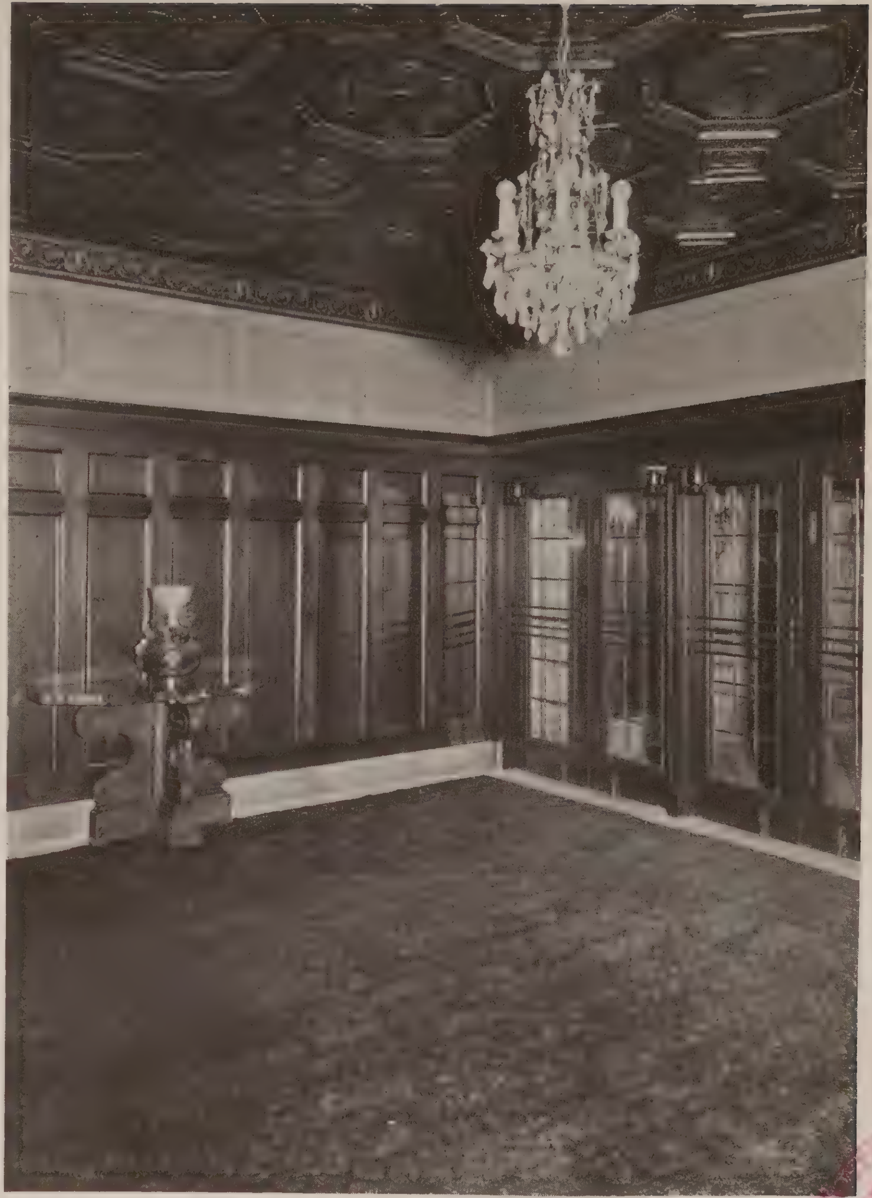


ORGAN SCREEN AND PROSCENIUM

THE FORT ARMSTRONG THEATER, ROCK ISLAND, ILL.
CERVIN & HORN, ARCHITECTS; W. T. BRAUN, ASSOCIATE



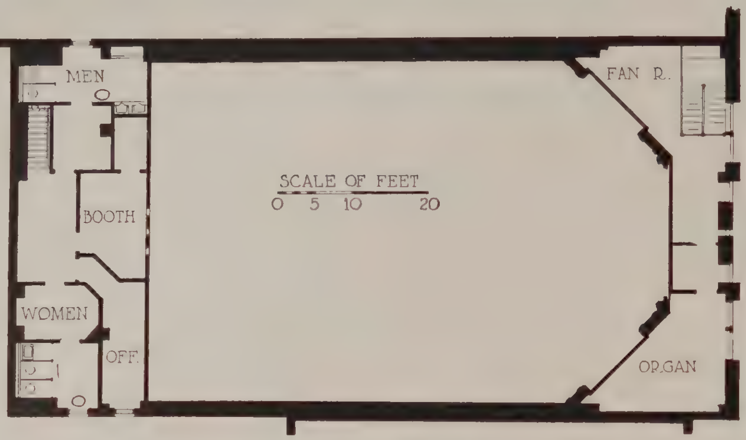
ENTRANCE CORRIDOR



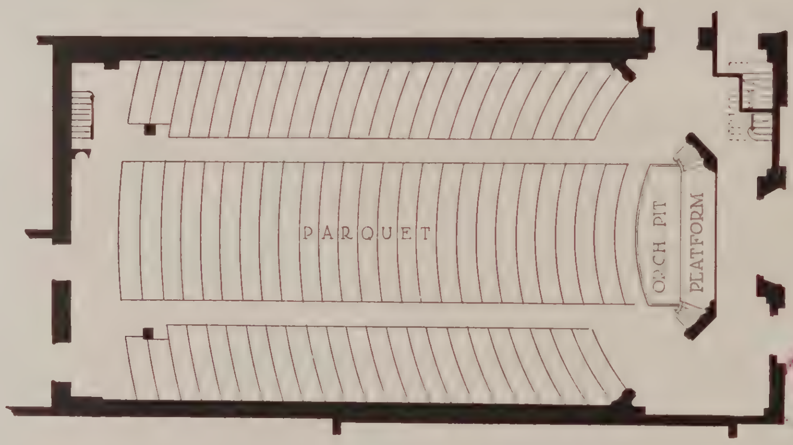
VIEW OF LOBBY

(Plans on Back)

THE CAMEO THEATER, NEW YORK
EUGENE DE ROSA, ARCHITECT

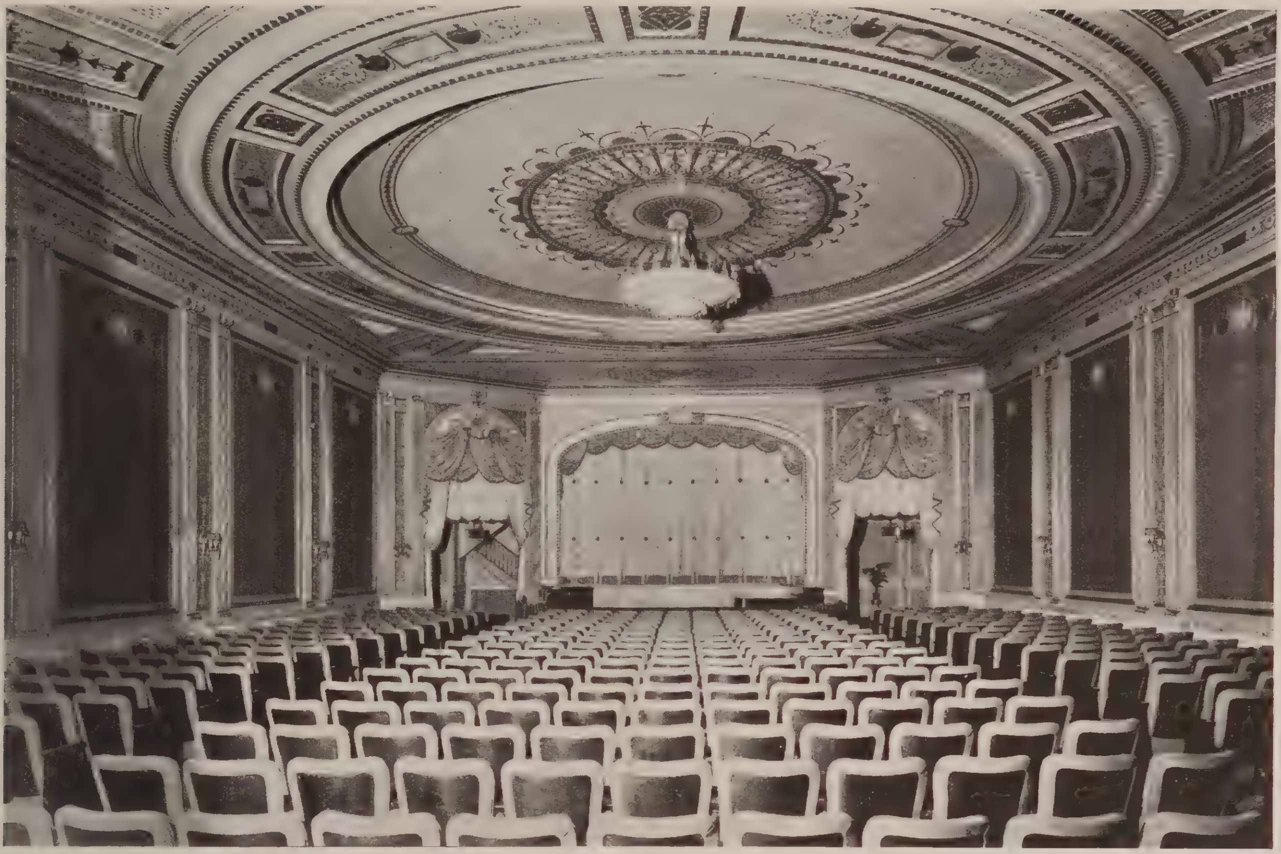


MEZZANINE FLOOR

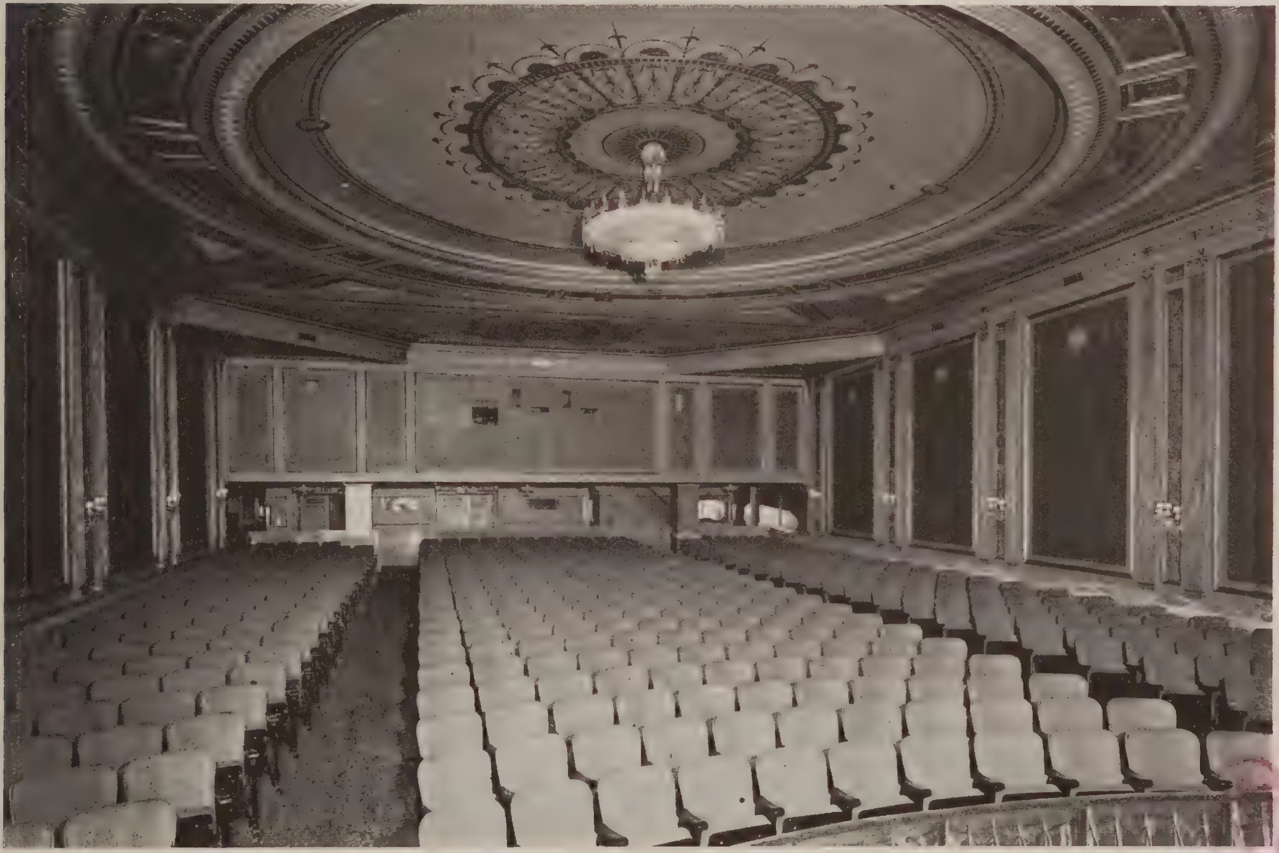


MAIN FLOOR

PLANS, THE CAMEO THEATER, NEW YORK
EUGENE DE ROSA, ARCHITECT



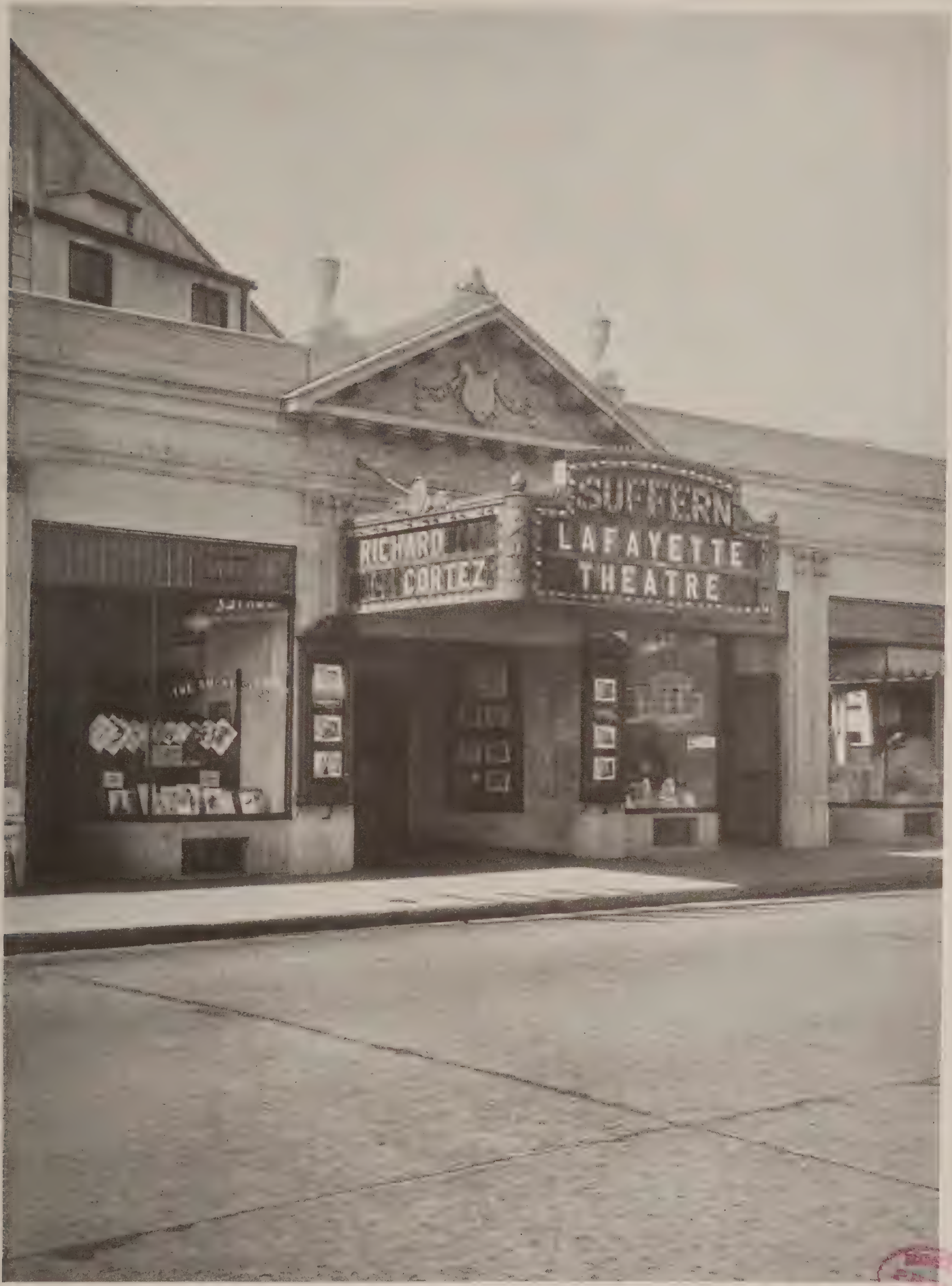
VIEW TOWARD THE STAGE



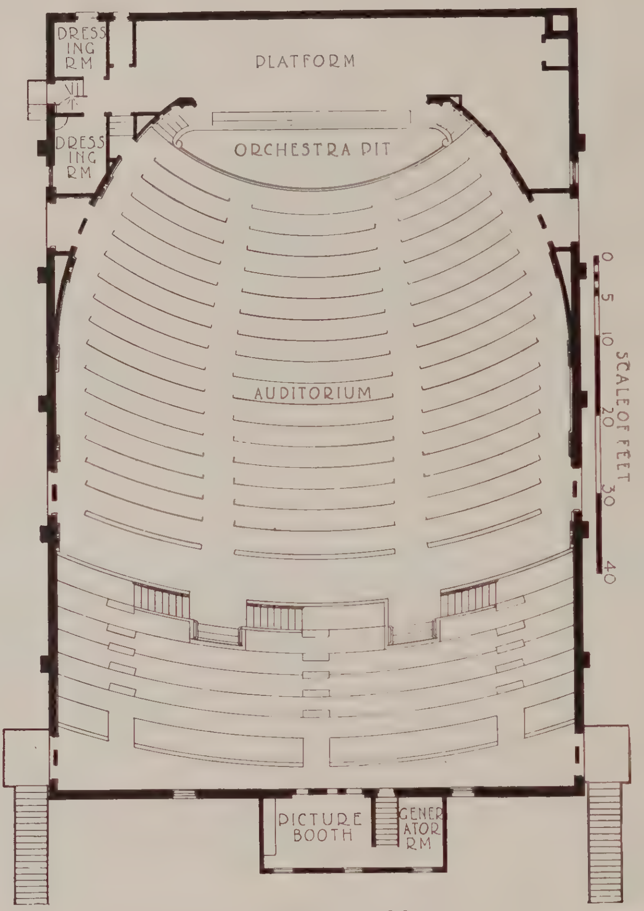
AUDITORIUM FROM THE STAGE

THE CAMEO THEATER, NEW YORK

EUGENE DE ROSA, ARCHITECT

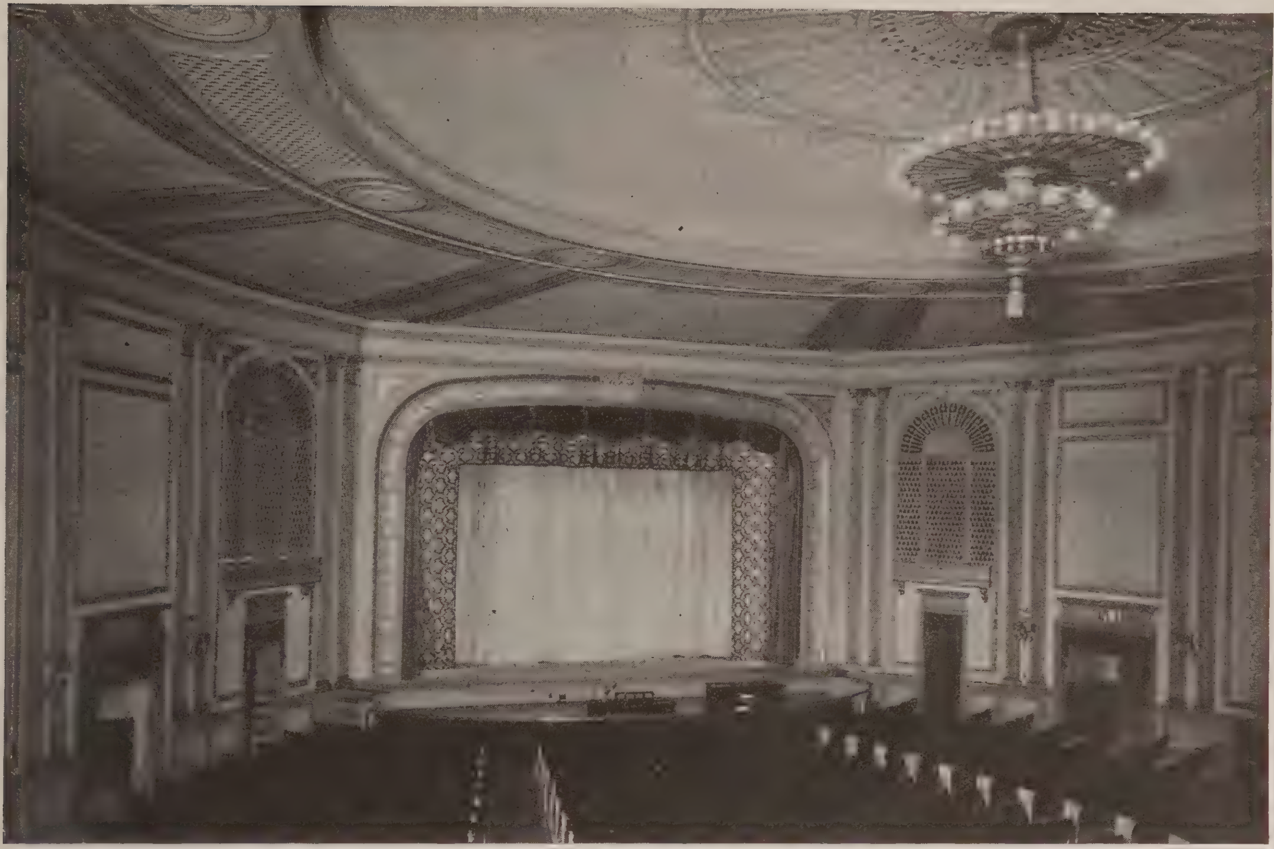


THE LAFAYETTE THEATER, SUFFERN, N. Y.
EUGENE DE ROSA, ARCHITECT

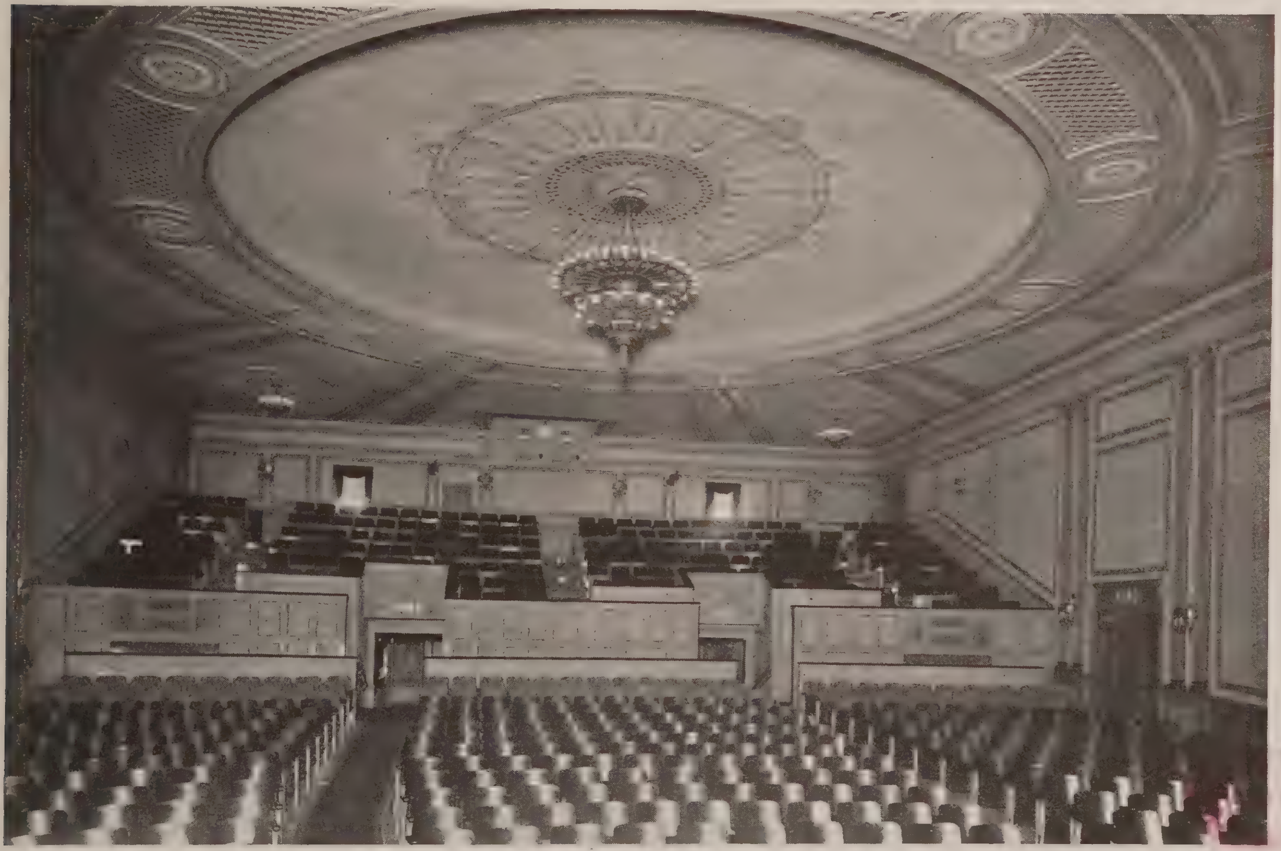


AUDITORIUM FLOOR

PLAN, THE LAFAYETTE THEATER, SUFFERN, N. Y.
EUGENE DE ROSA, ARCHITECT



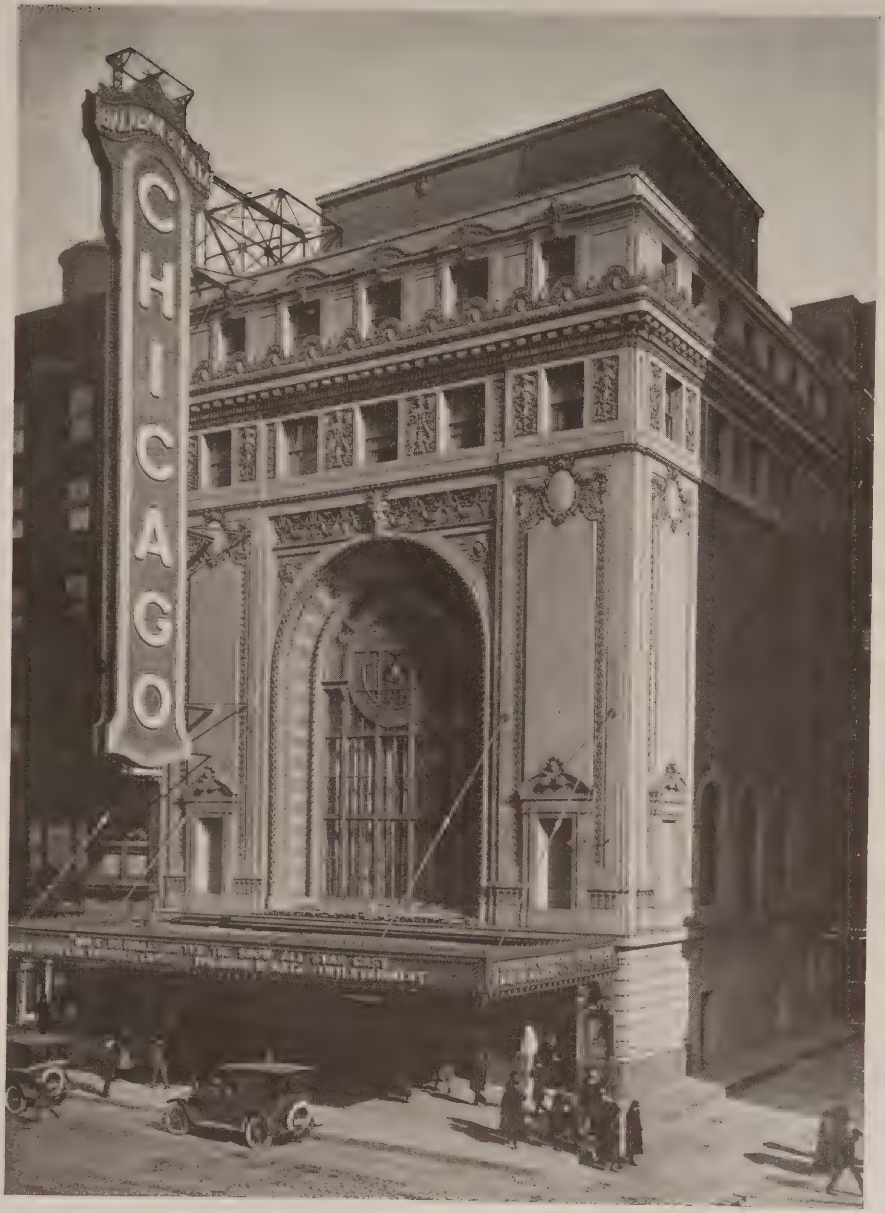
VIEW TOWARD THE STAGE



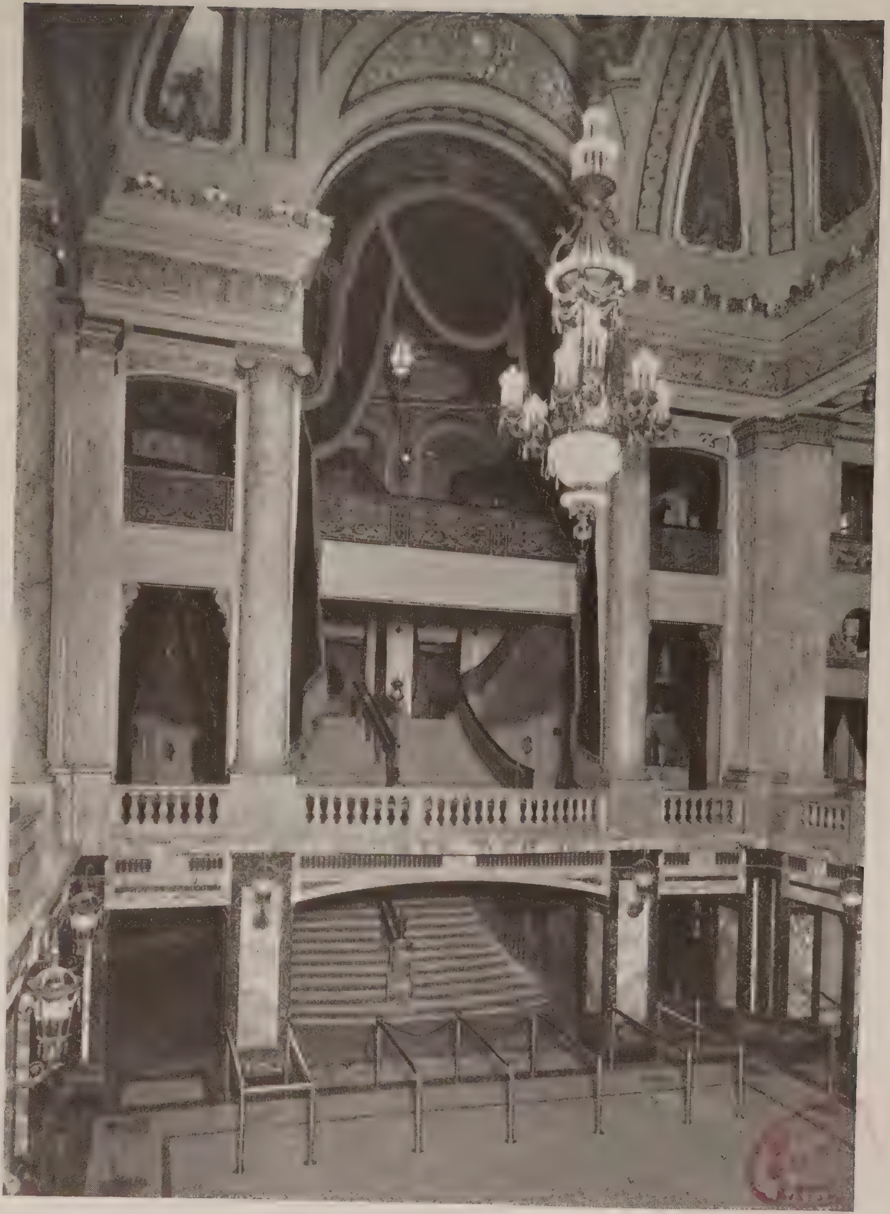
AUDITORIUM FROM THE STAGE

THE LAFAYETTE THEATER, SUFFERN, N. Y.

EUGENE DE ROSA, ARCHITECT



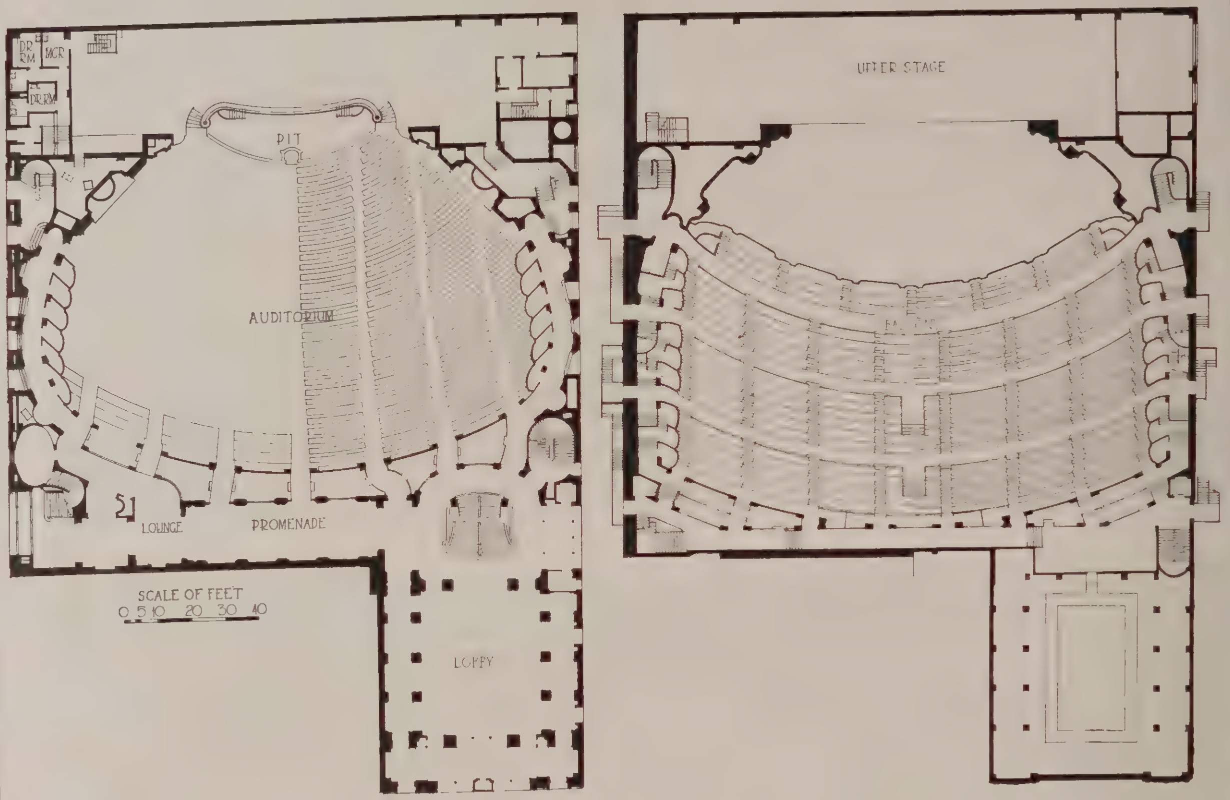
FRONT ELEVATION



ENTRANCE LOBBY

(Plans on Back)

THE CHICAGO THEATER, CHICAGO
C. W. & GEORGE L. RAPP, ARCHITECTS

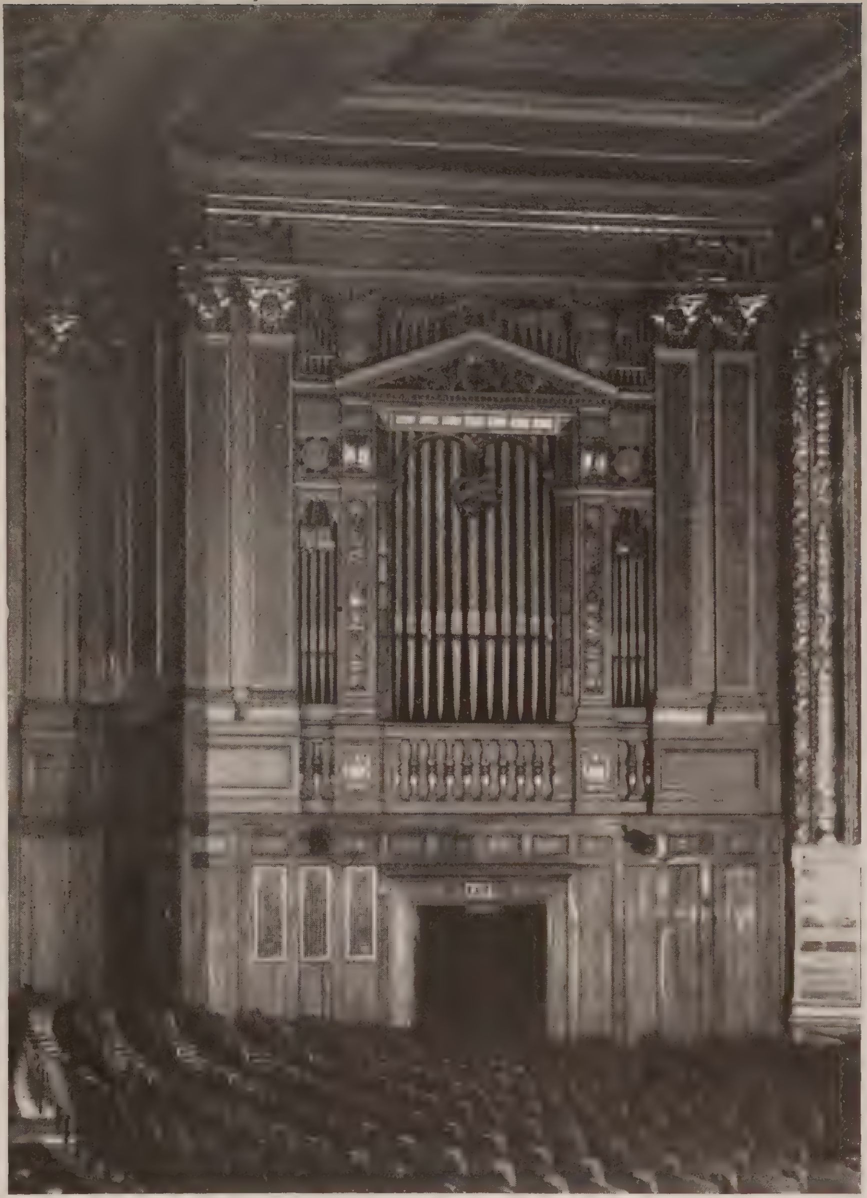


ENTRANCE FLOOR

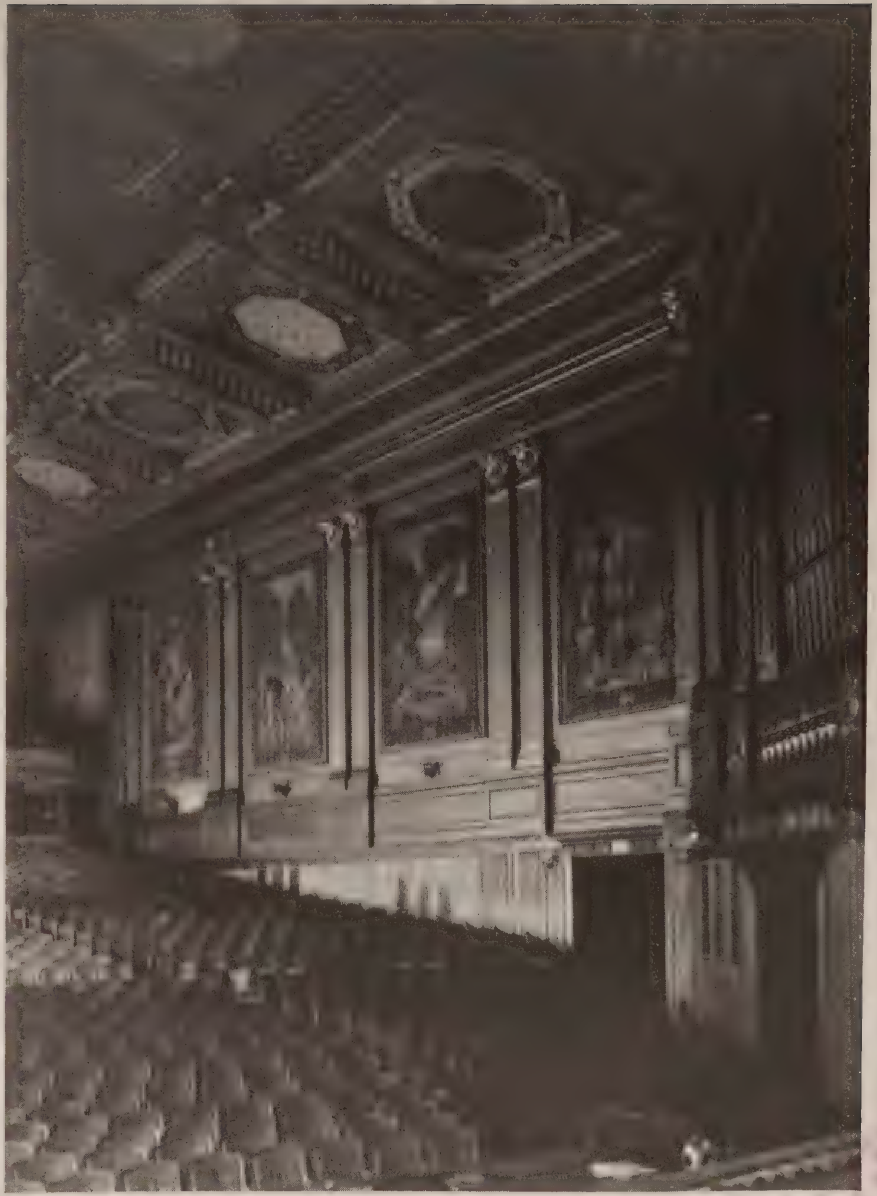
BALCONY FLOOR

PLANS, THE CHICAGO THEATER, CHICAGO

C. W. & GEORGE L. RAPP, ARCHITECTS



ORGAN CASE

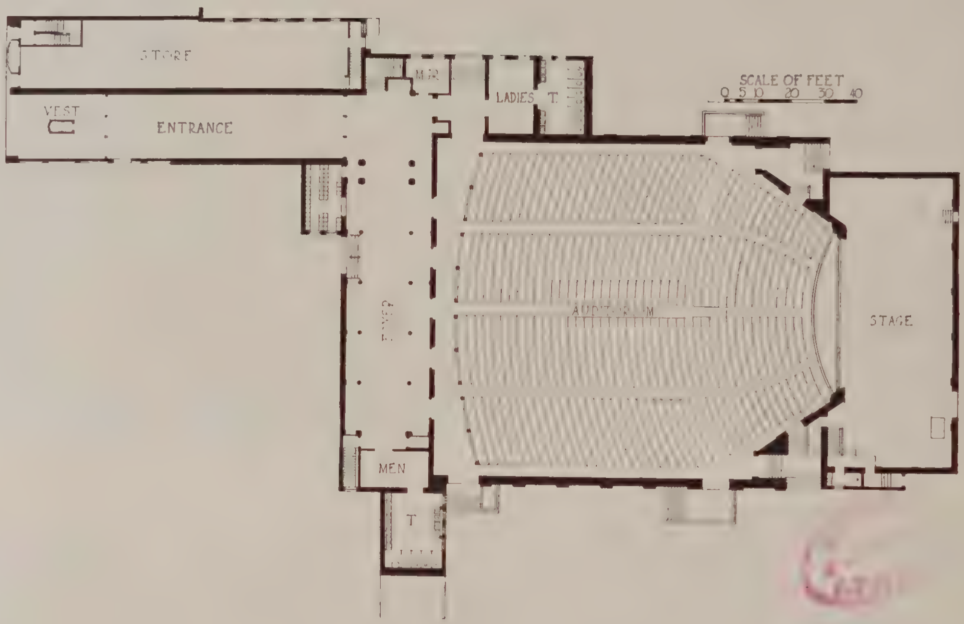


(Plans on Back)

AUDITORIUM

GORDON'S CENTRAL SQUARE THEATER, CAMBRIDGE, MASS.

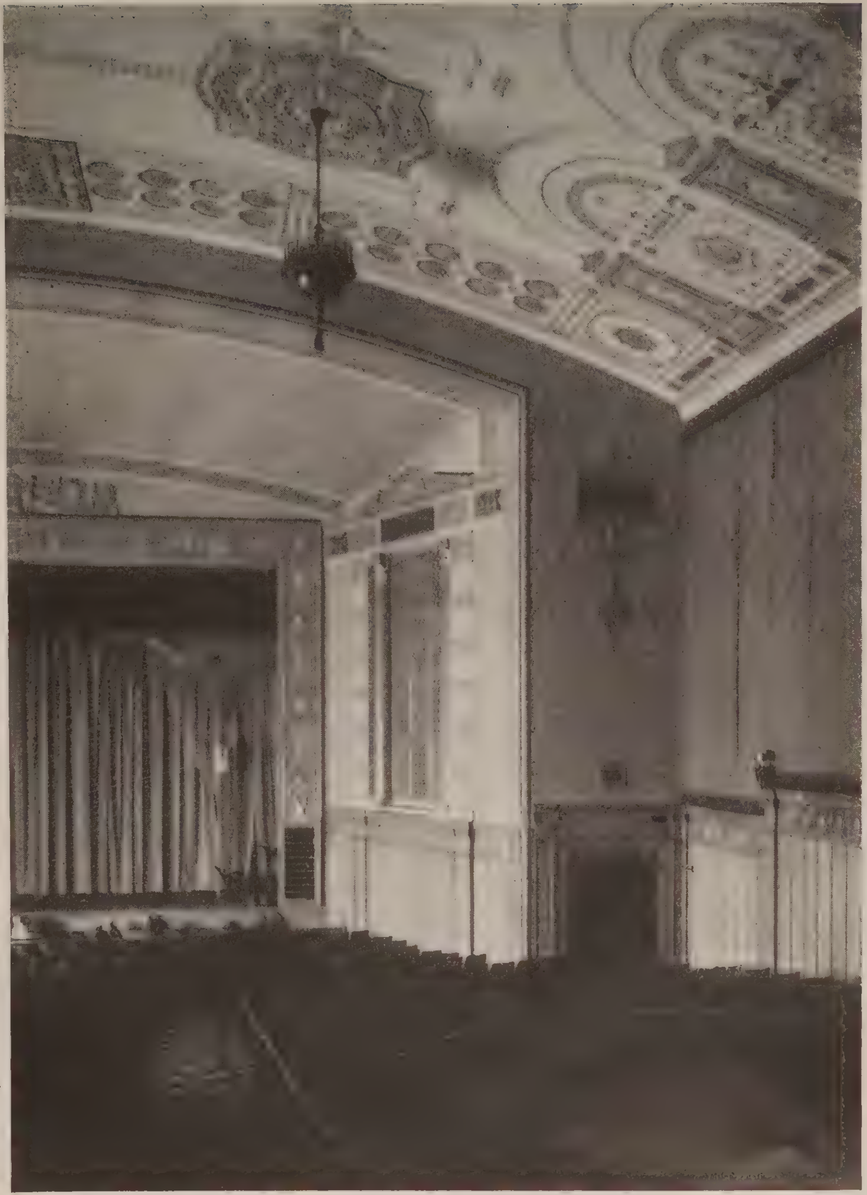
MOWLL & RAND, ARCHITECTS



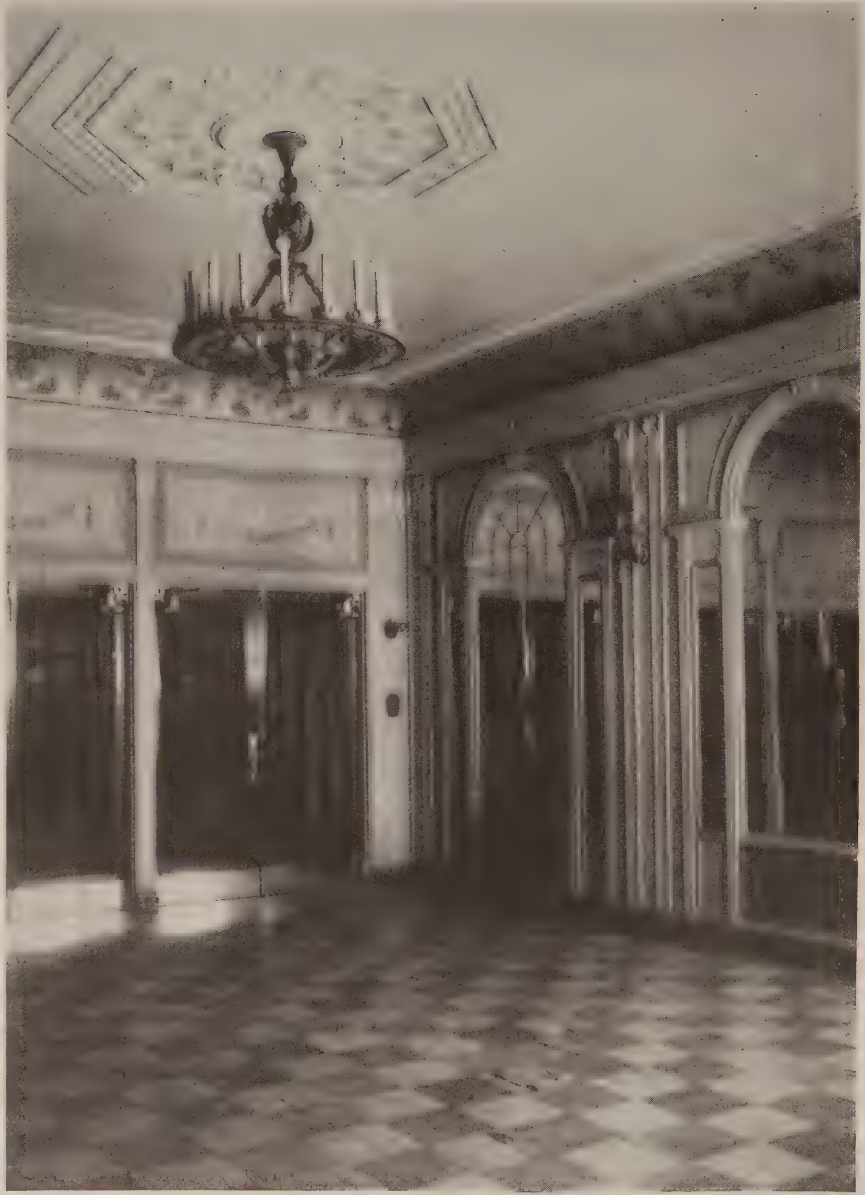
MAIN FLOOR

PLANS, THE CENTRAL SQUARE THEATER, CAMBRIDGE, MASS.

MOWLL & RAND, ARCHITECTS



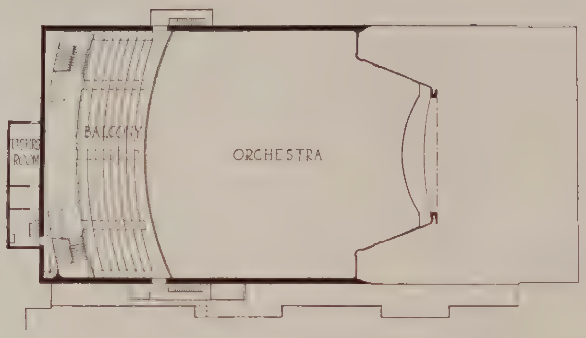
AUDITORIUM



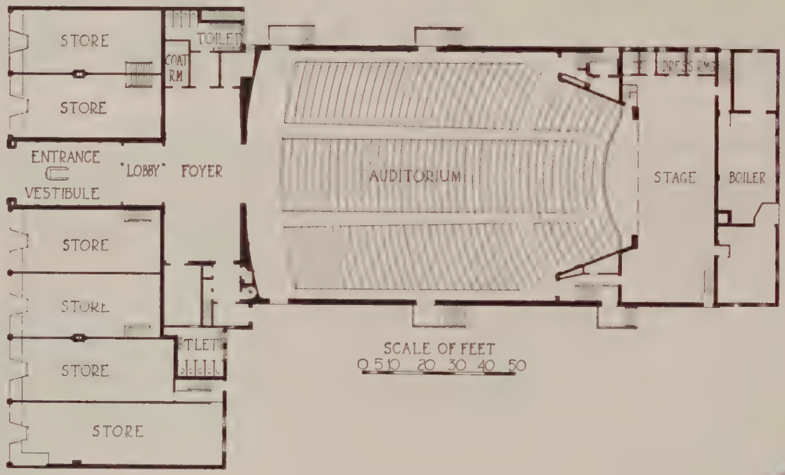
(Plans on Back)

ENTRANCE LOBBY

GORDON'S CAPITOL THEATER, ALLSTON, MASS.
MOWLL & RAND, ARCHITECTS



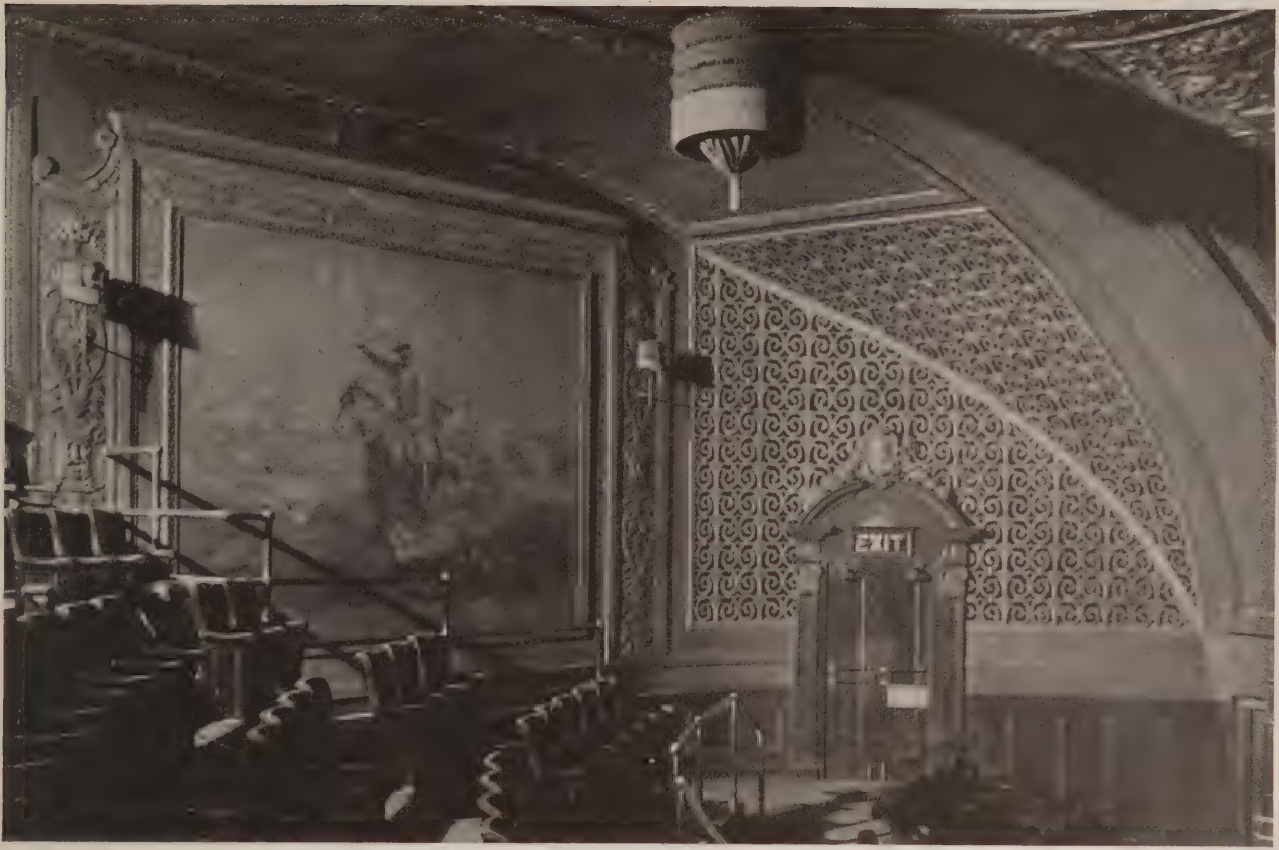
BALCONY FLOOR



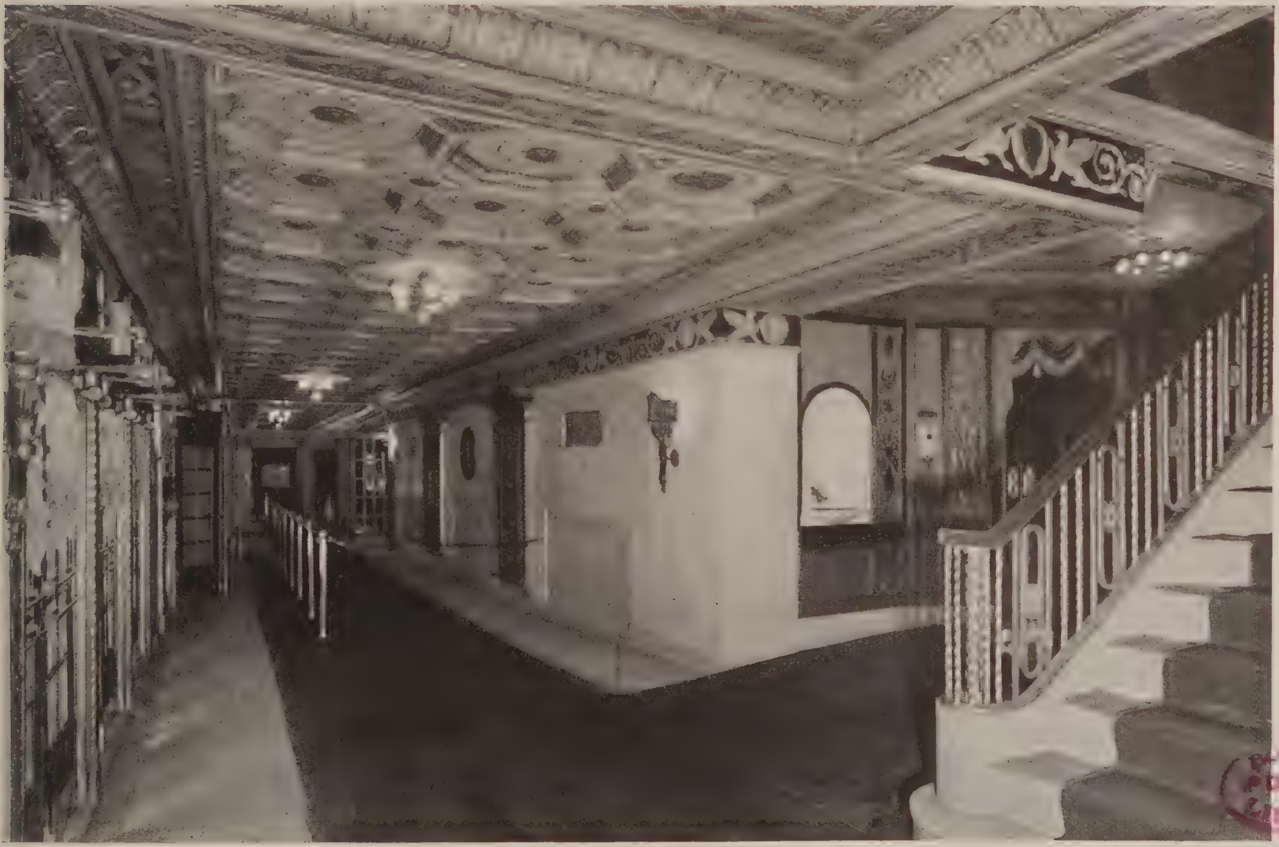
GROUND FLOOR

BOSTON PUBLIC LIBRARY

PLANS, THE CAPITOL THEATER, ALLSTON, MASS.
MOWLL & RAND, ARCHITECTS



DETAIL, WALL DECORATIONS IN GALLERY

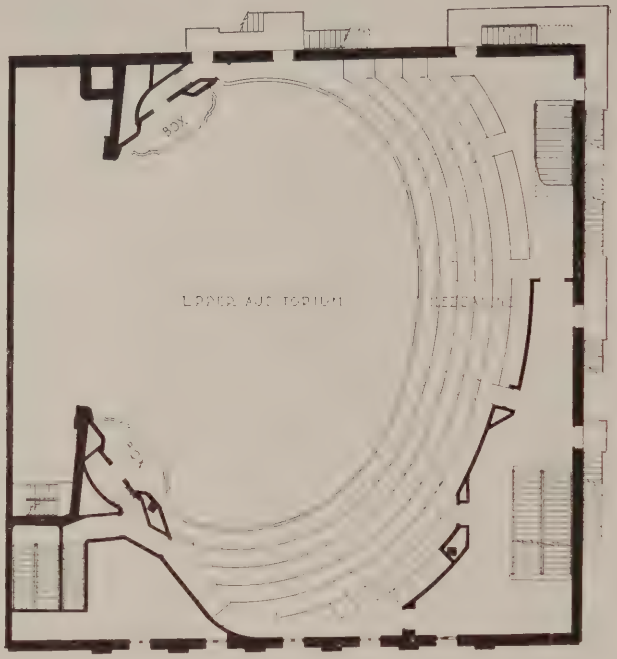


ENTRANCE LOBBY

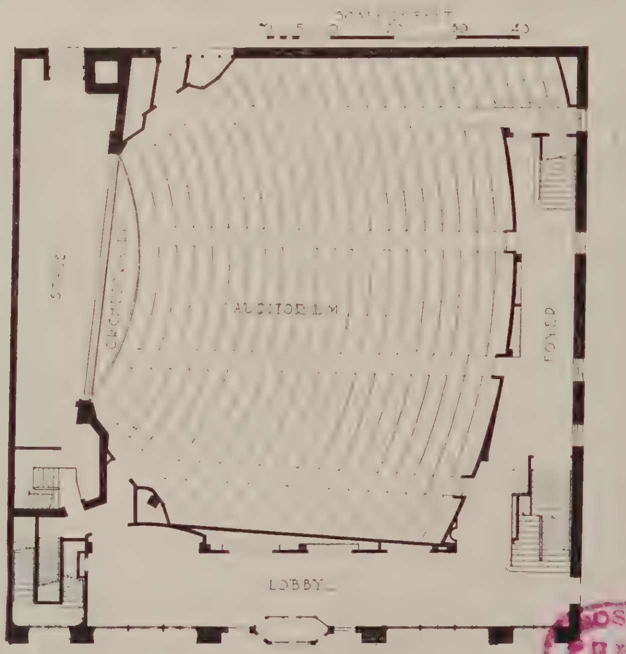
(Plans on Back)

THE ROOSEVELT THEATER, CHICAGO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



MEZZANINE FLOOR

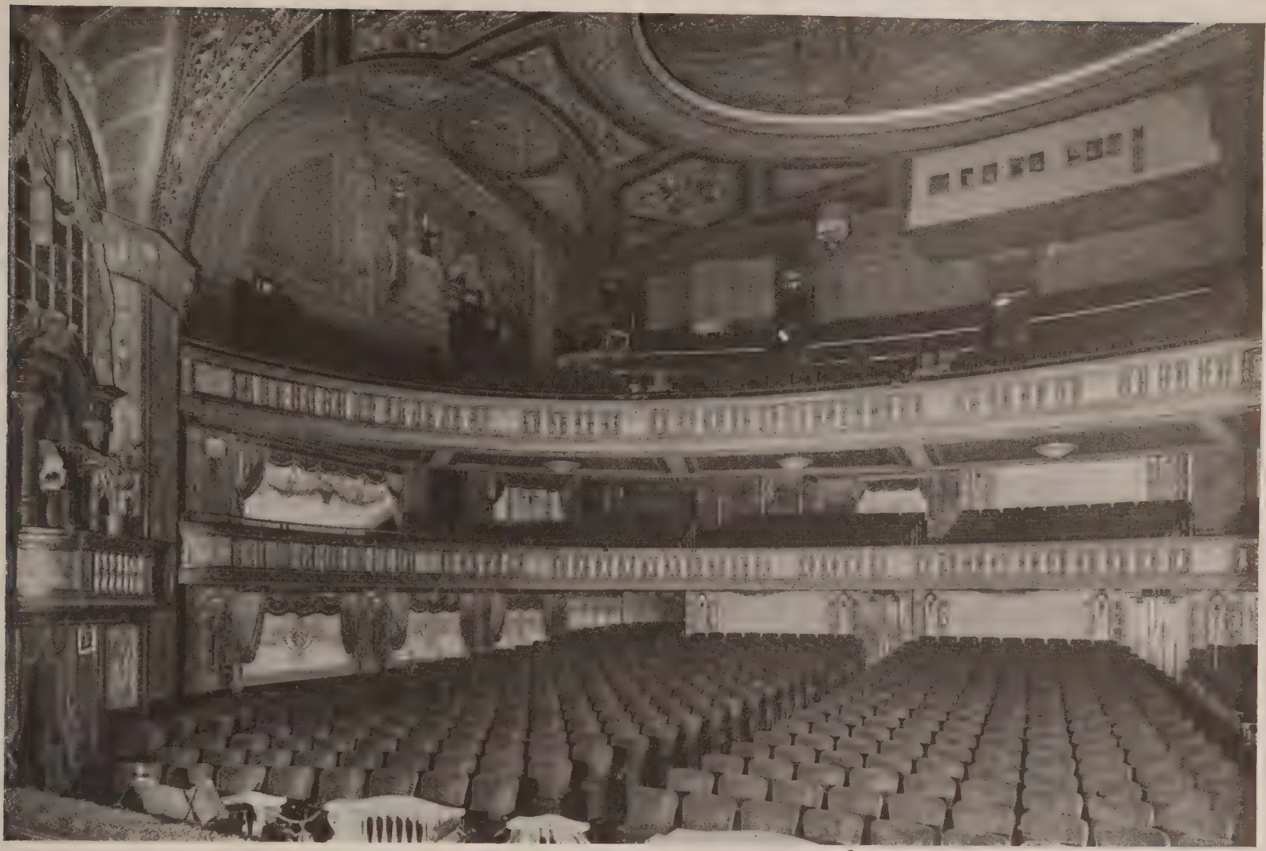


MAIN FLOOR

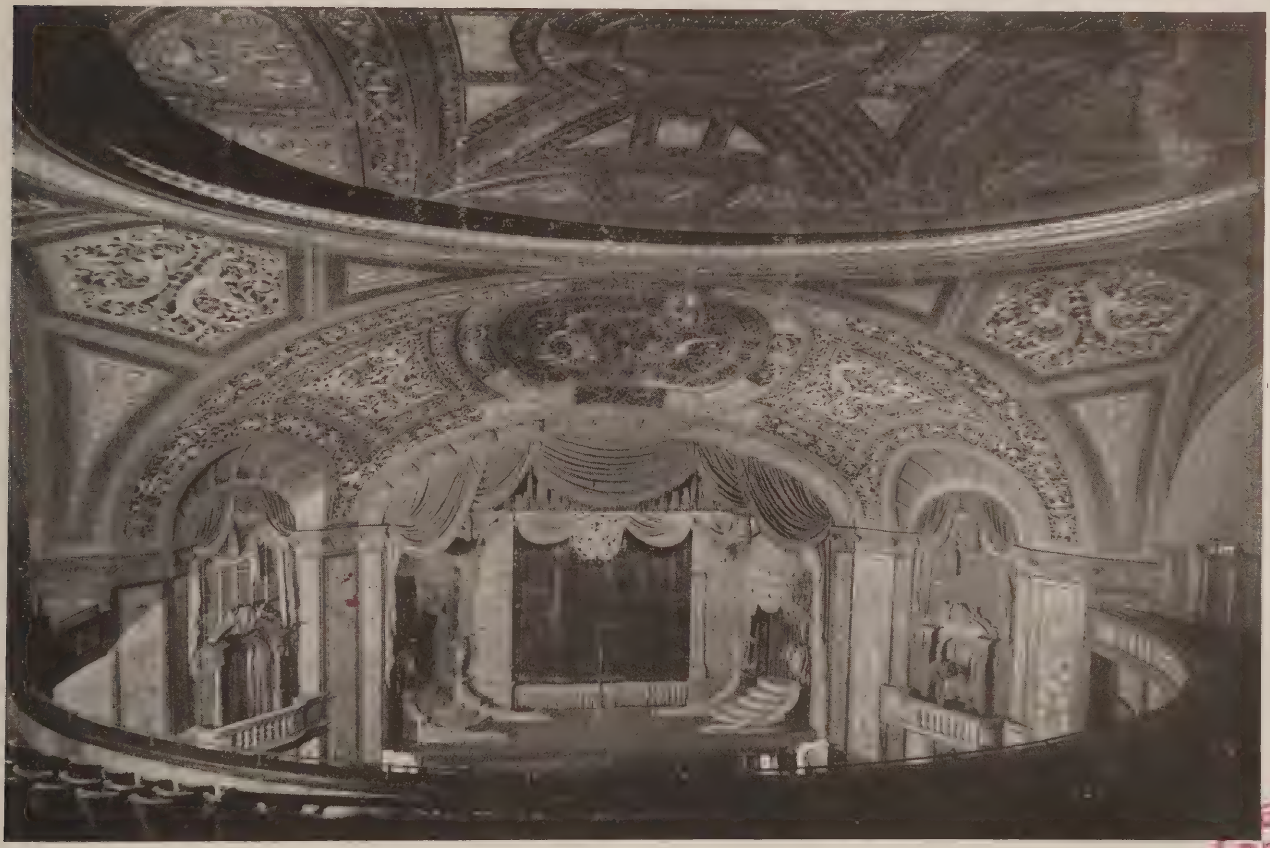
BOSTON PUBLIC LIBRARY

PLANS, THE ROOSEVELT THEATER, CHICAGO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS



THE AUDITORIUM

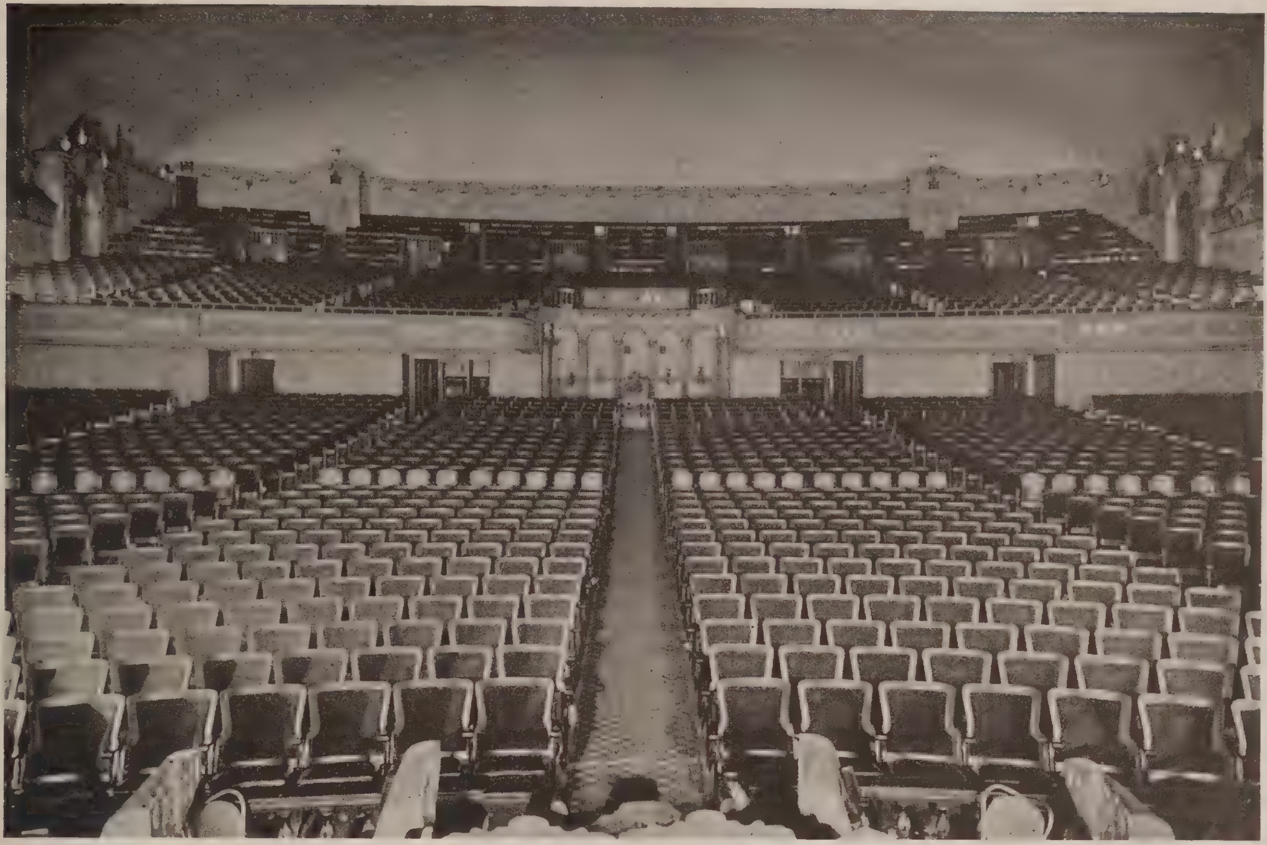


THE STAGE FROM THE GALLERY

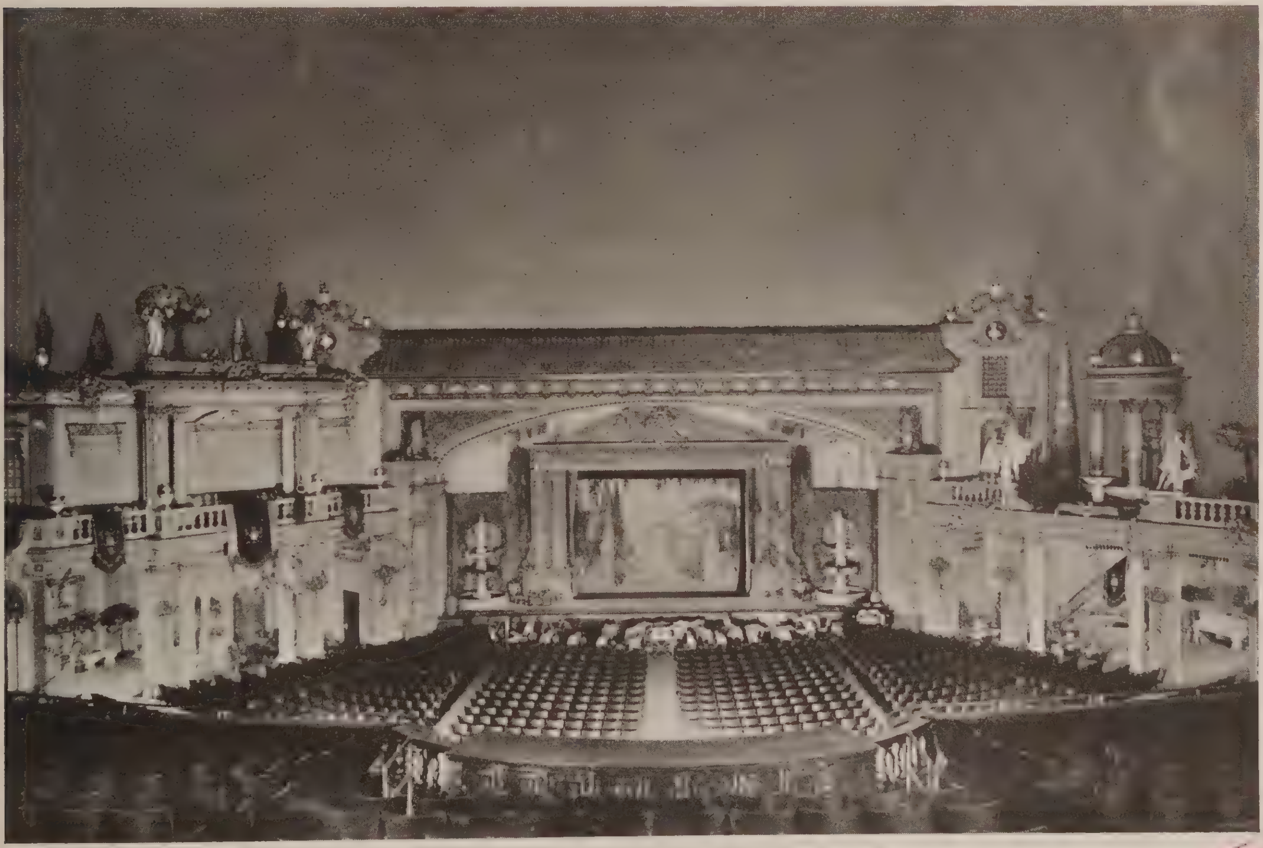
THE ROOSEVELT THEATER, CHICAGO

C. HOWARD CRANE AND KENNETH FRANZHEIM, ARCHITECTS

PUBLIC LIBRARY



NOTE SUCCESSFUL SCREENING OF THE PROJECTION BOOTH AT THE REAR OF THE AUDITORIUM

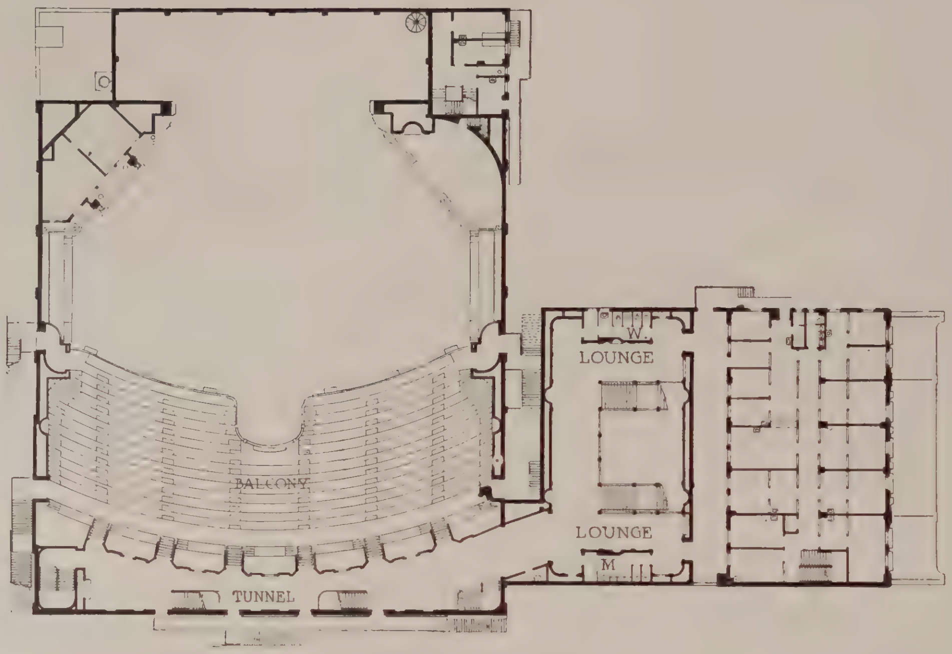


THE SKYLINE TREATMENT OF THE CEILING PRODUCES AN UNUSUAL EFFECT

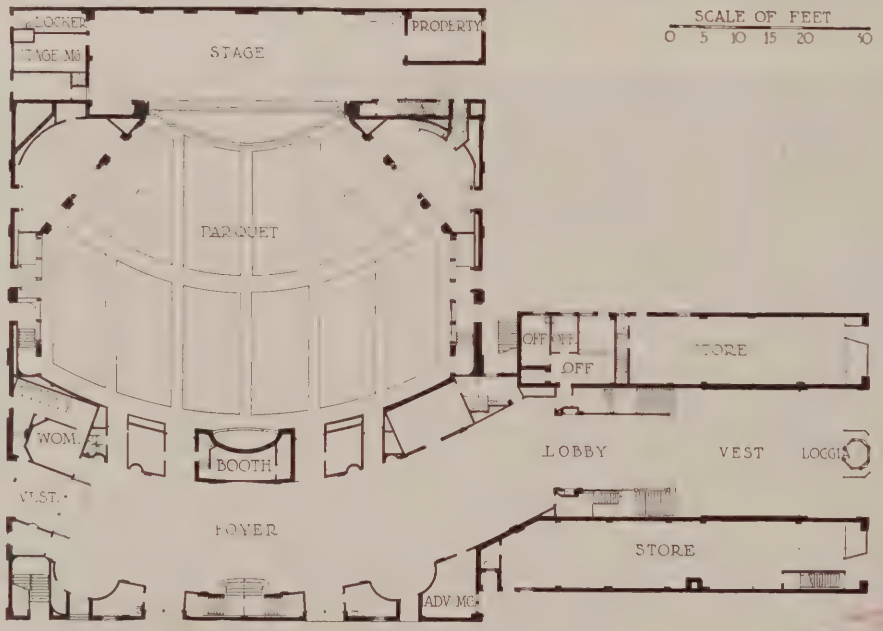
(Plans on Back)

THE CAPITOL THEATER, CHICAGO

JOHN EBERSON, ARCHITECT



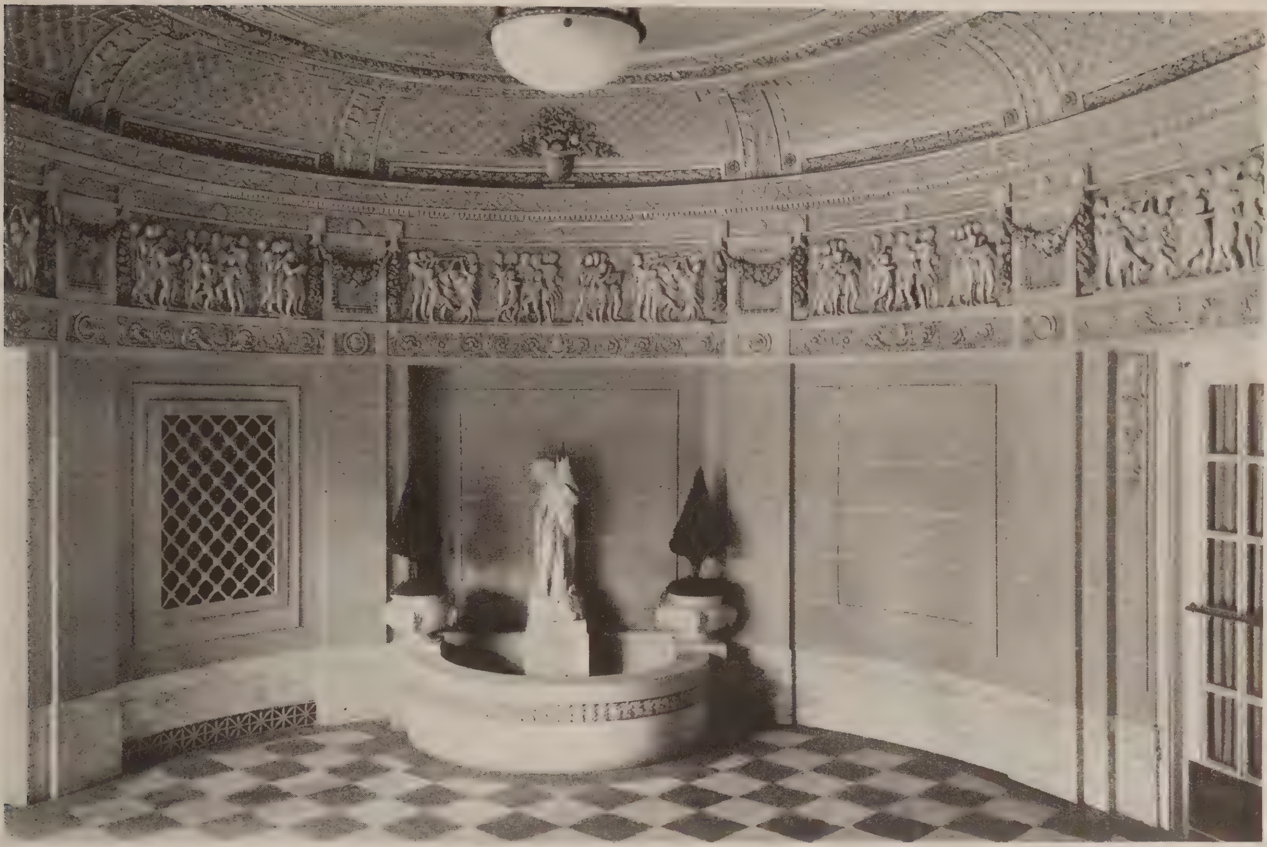
BALCONY FLOOR



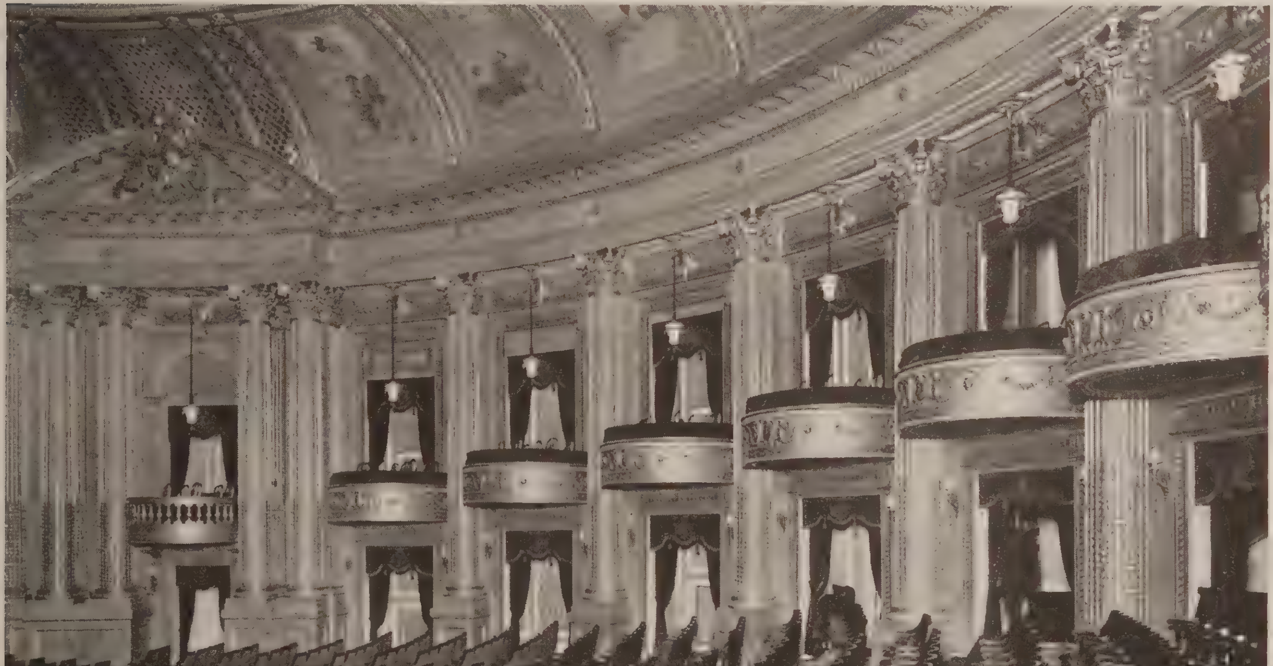
MAIN FLOOR

PLANS, THE CAPITOL THEATER, CHICAGO

JOHN EBERSON, ARCHITECT



ENTRANCE LOBBY

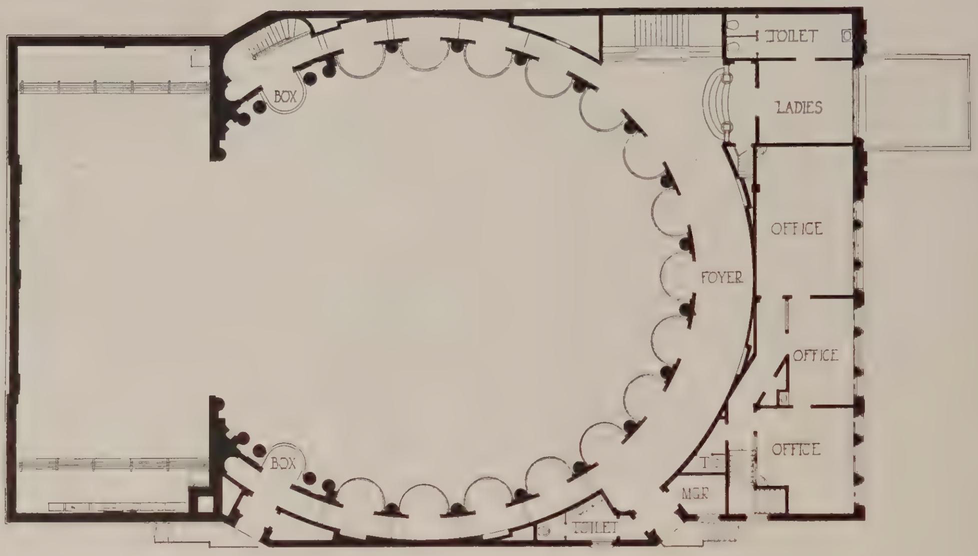


(Plans on Back)

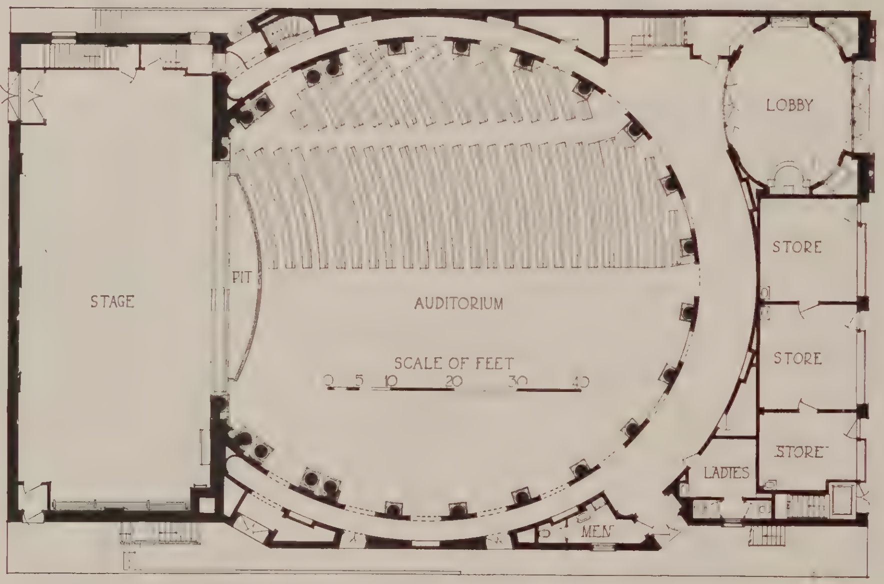
A SUCCESSFUL AND UNUSUAL TREATMENT OF BOXES

THE AL. RINGLING MEMORIAL THEATER, BARABOO, WIS.

C. W. & GEORGE L. RAPP, ARCHITECTS



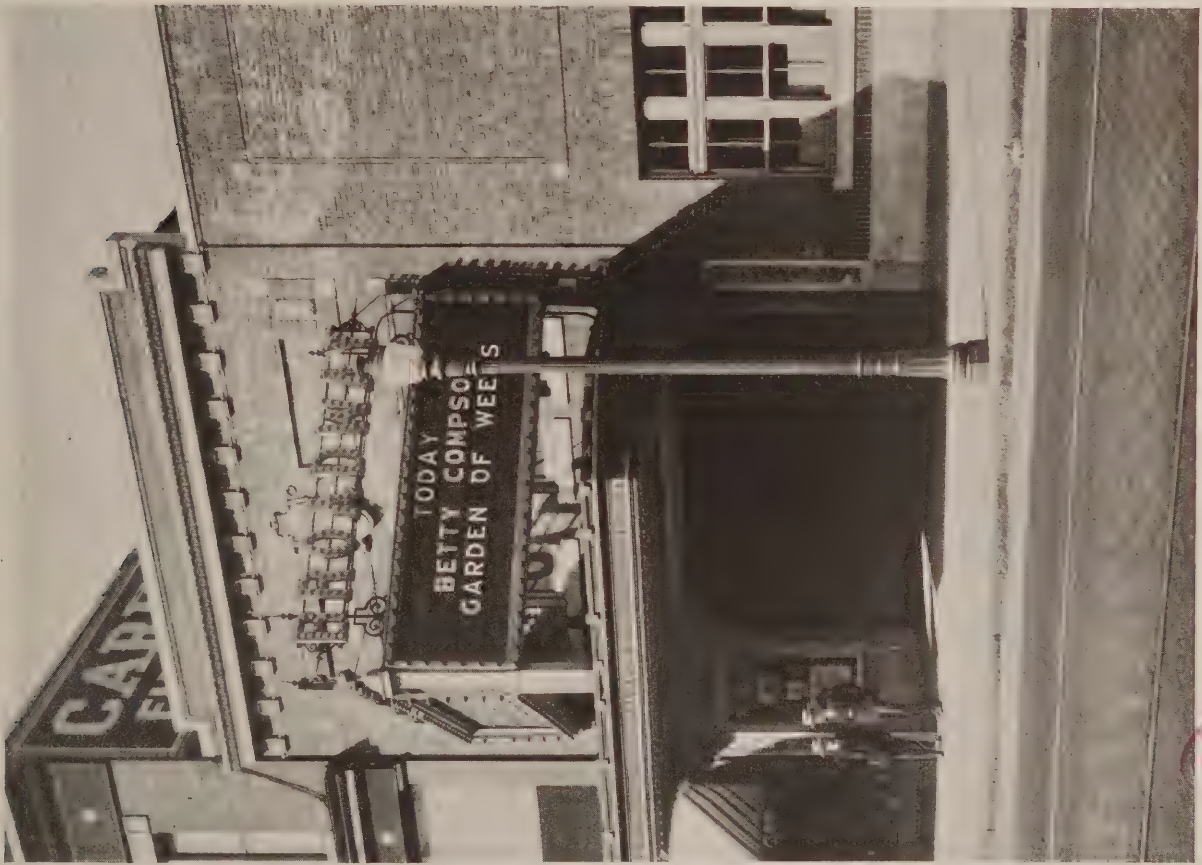
ENTRESOL WITH BOXES



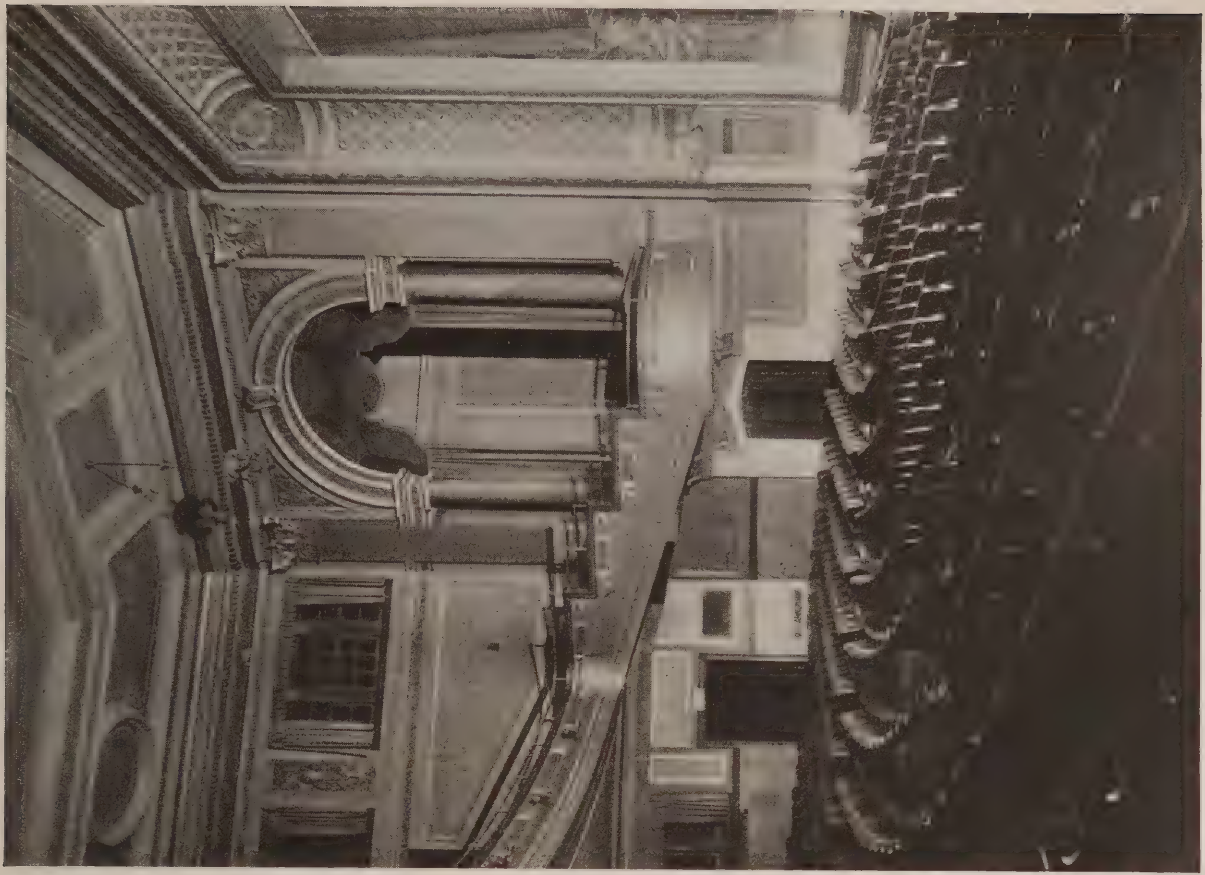
ENTRANCE FLOOR

PLANS, THE AL. RINGLING MEMORIAL THEATER, BARABOO, WIS.
C. W. & GEORGE L. RAPP, ARCHITECTS

BOSTON PU L



MAIN ENTRANCE

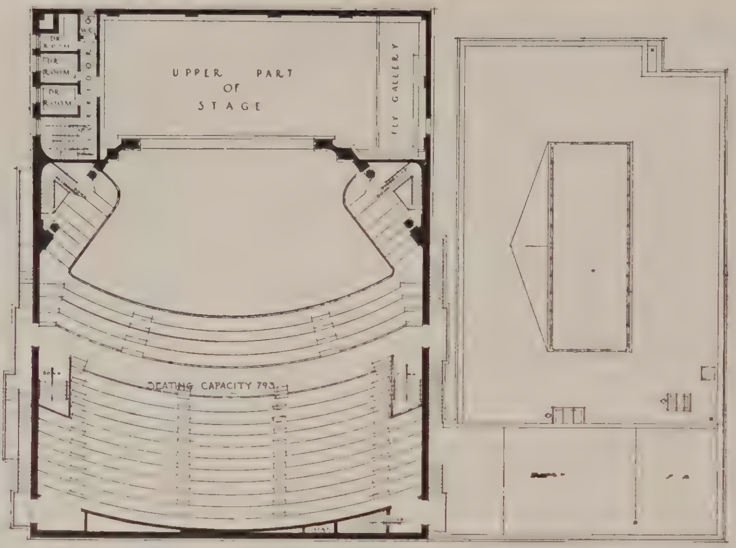


AUDITORIUM

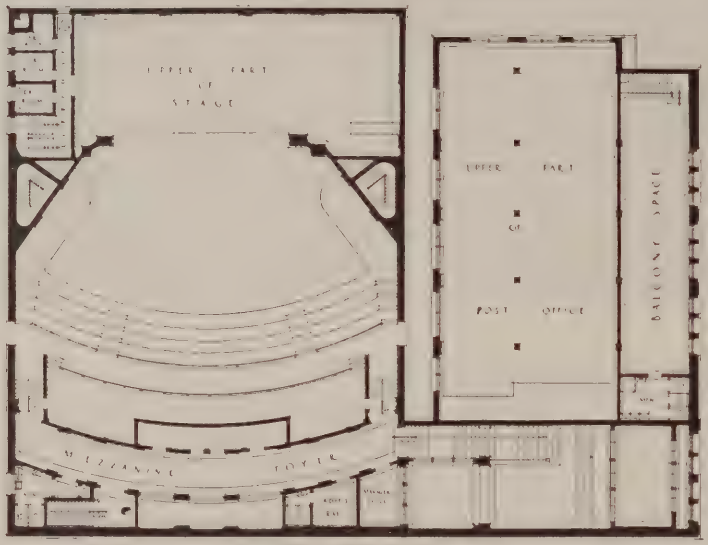
(Plans on Back)

THE BROADWAY THEATER, SOUTH BOSTON

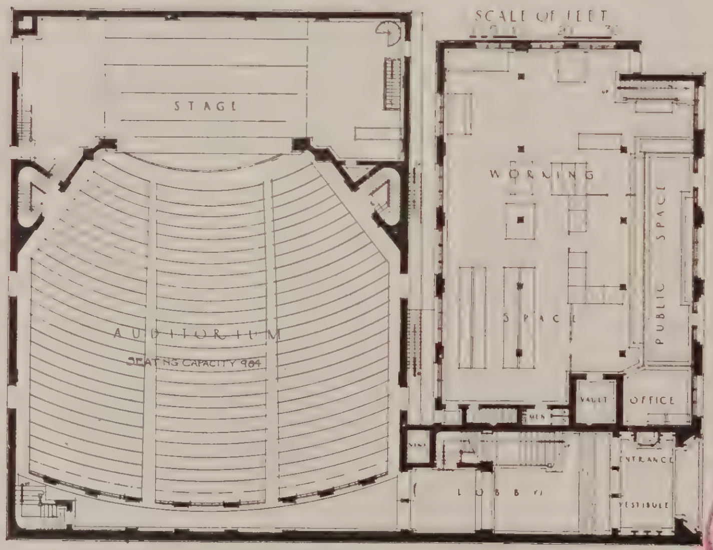
BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS



BALCONY FLOOR

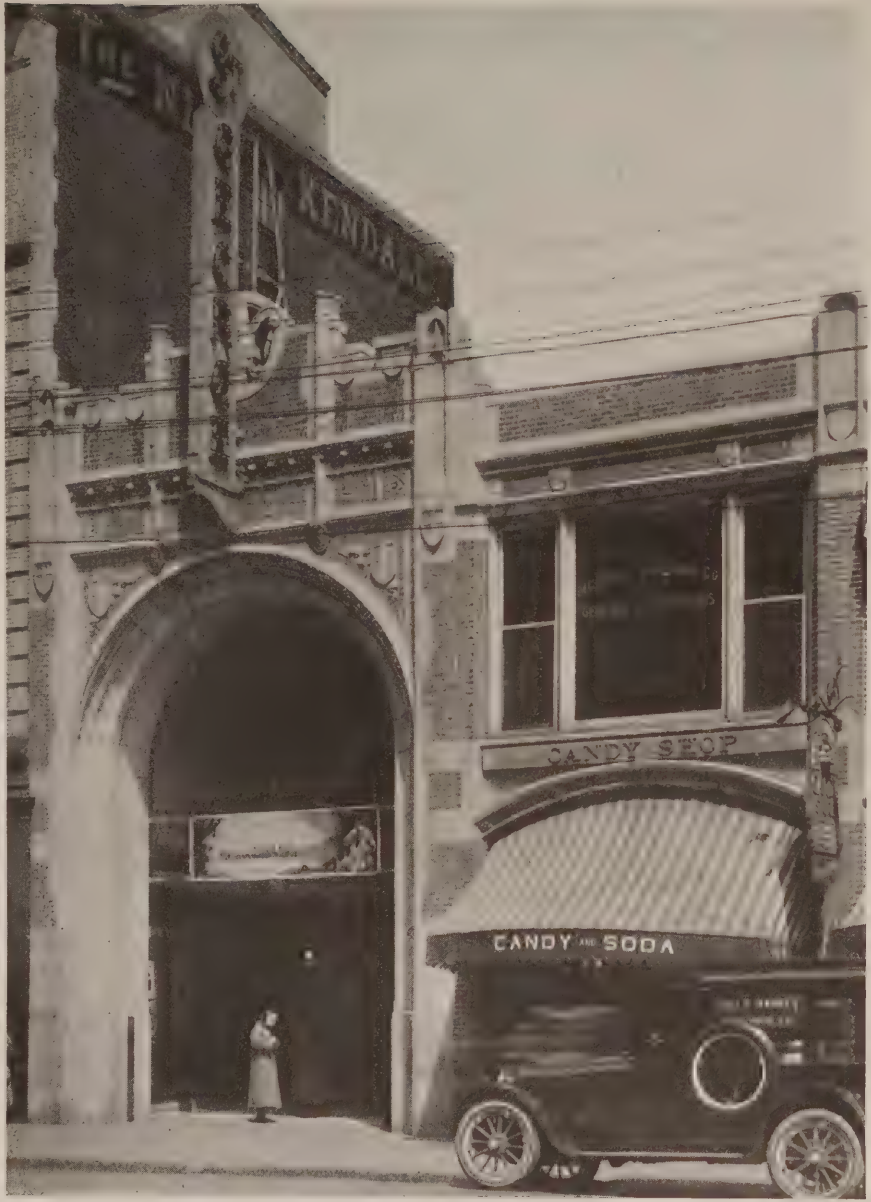


MEZZANINE FLOOR

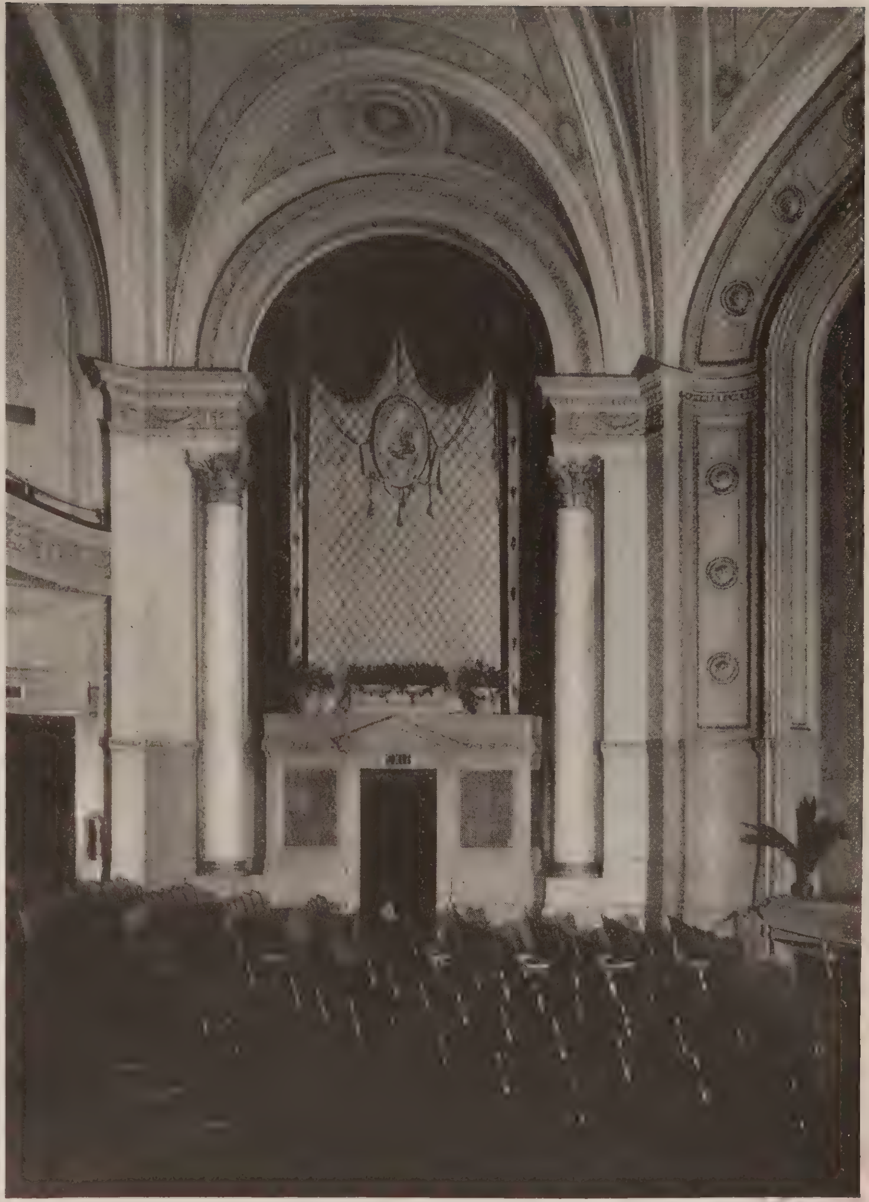


ENTRANCE FLOOR

PLANS, THE BROADWAY THEATER, SOUTH BOSTON
BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS



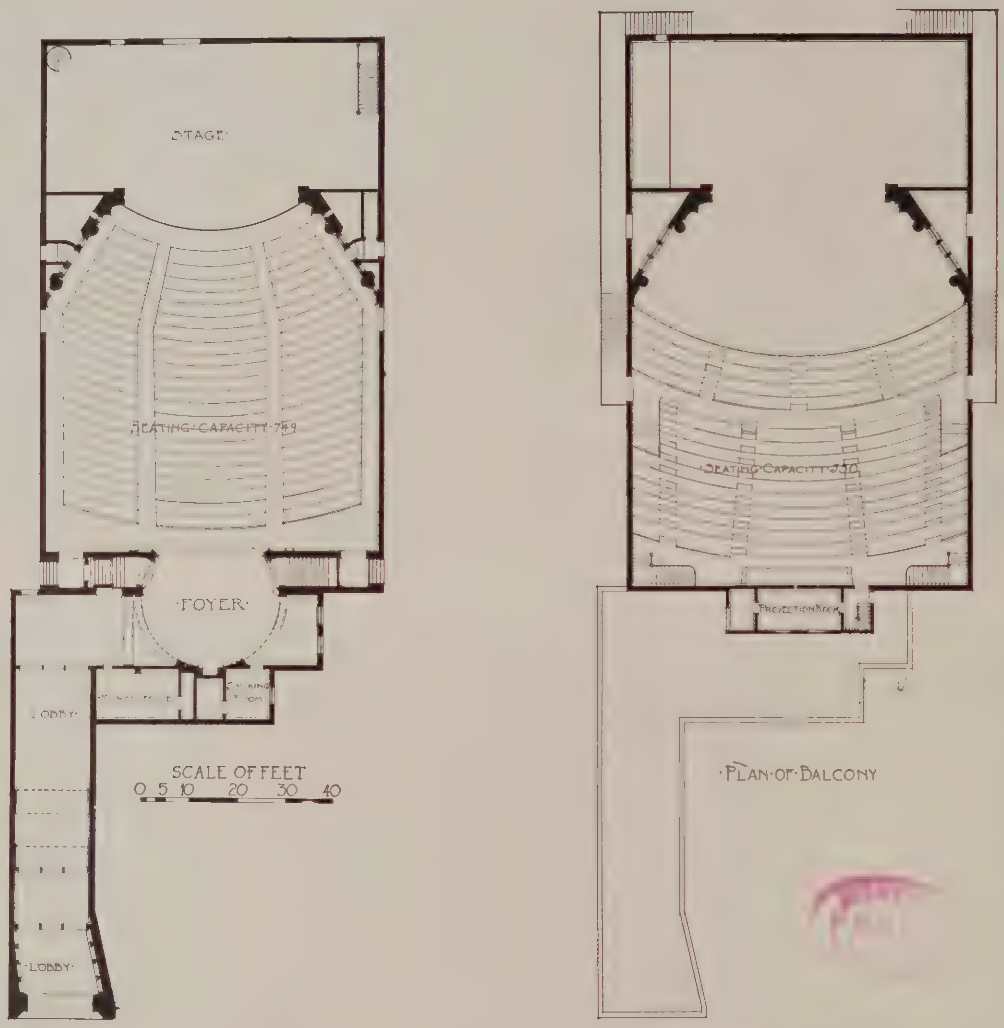
MAIN ENTRANCE



ORGAN SCREEN AND PROSCENIUM

(Plans on Back)

THE ST. GEORGE THEATER, FRAMINGHAM, MASS.
BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS

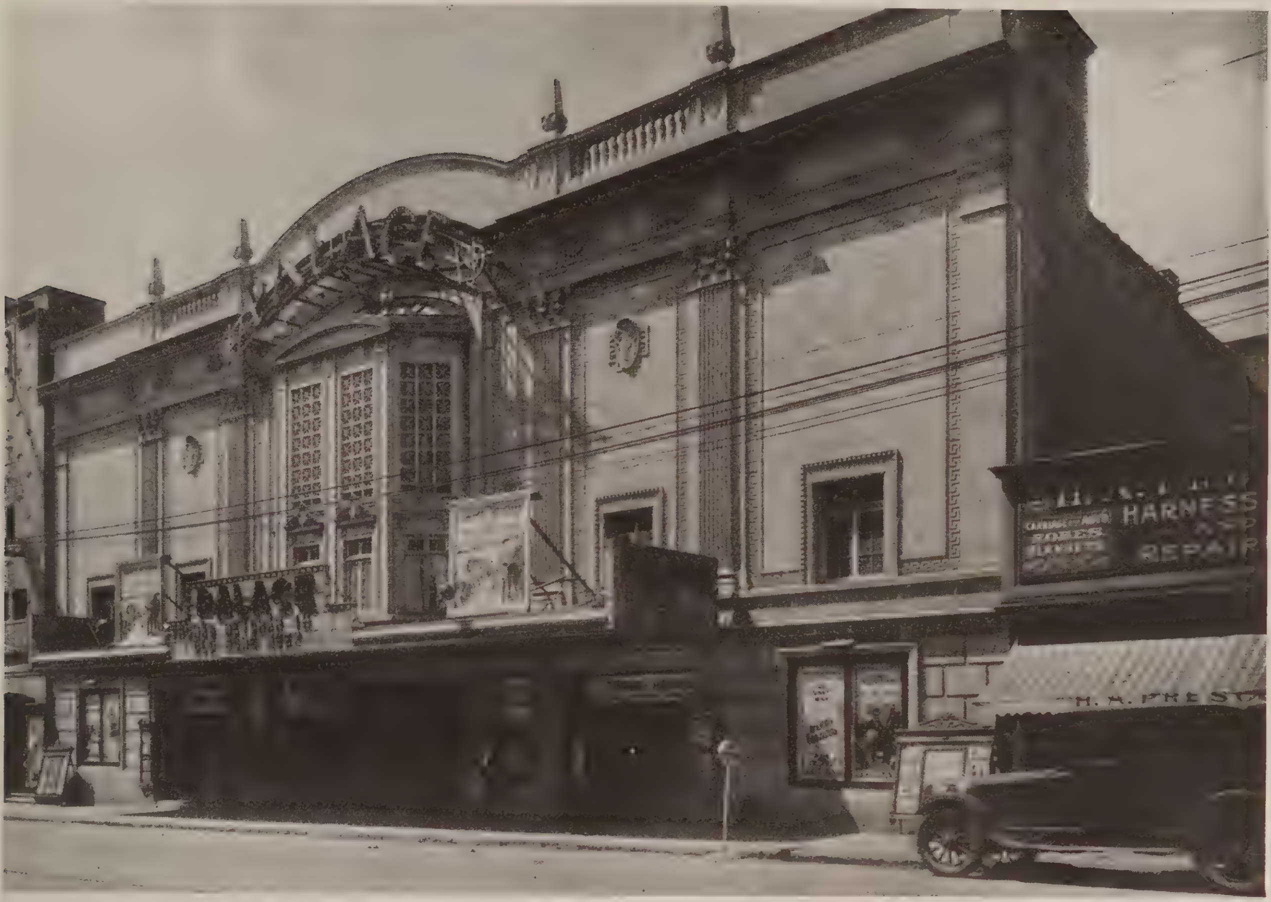


ENTRANCE FLOOR

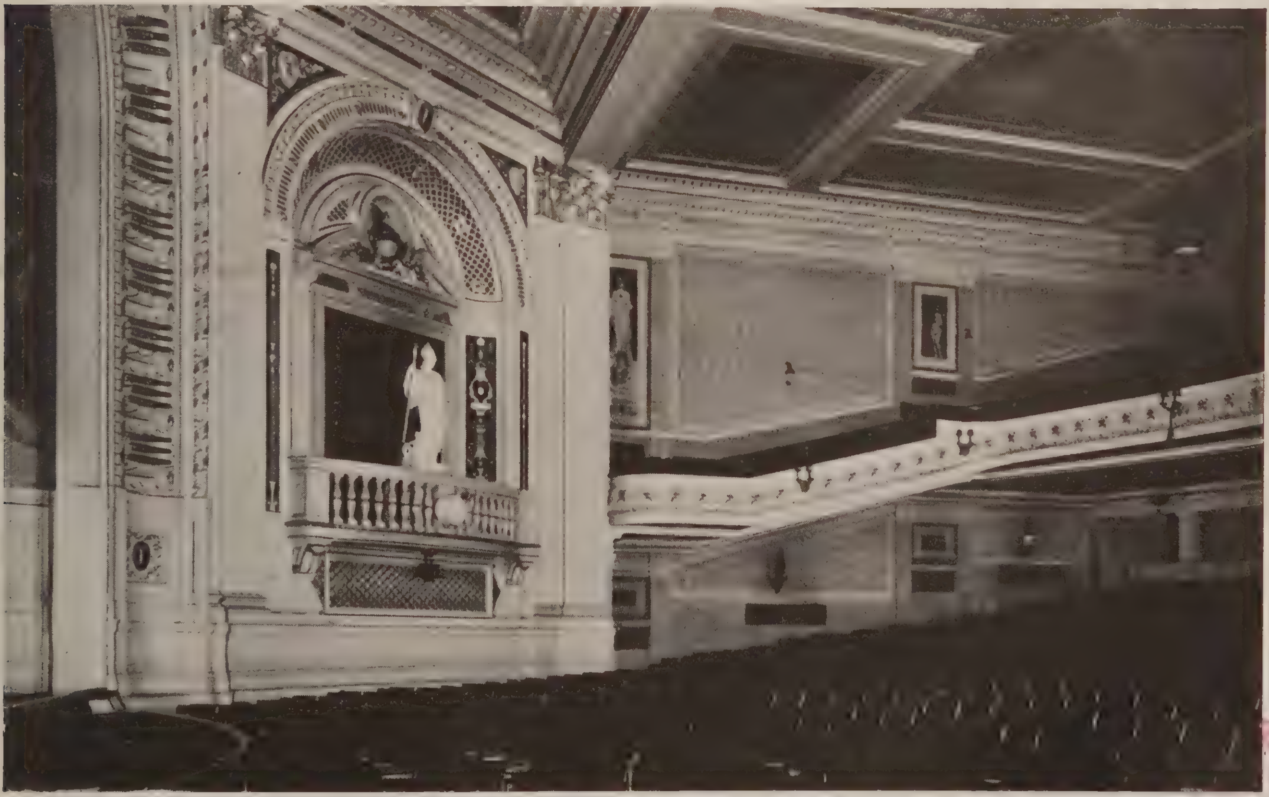
BALCONY FLOOR

PLANS, THE ST. GEORGE THEATER, FRAMINGHAM, MASS.

BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS



FRONT ELEVATION



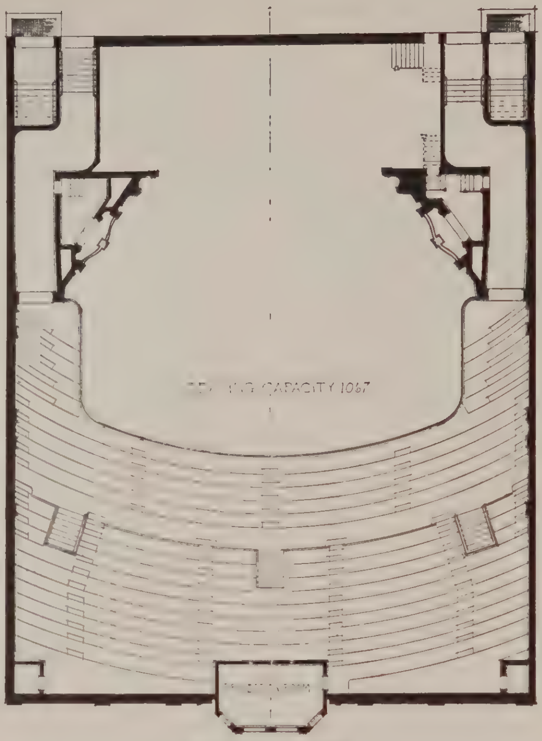
Photos. Paul J. Weber

ORGAN SCREEN AND PROSCENIUM

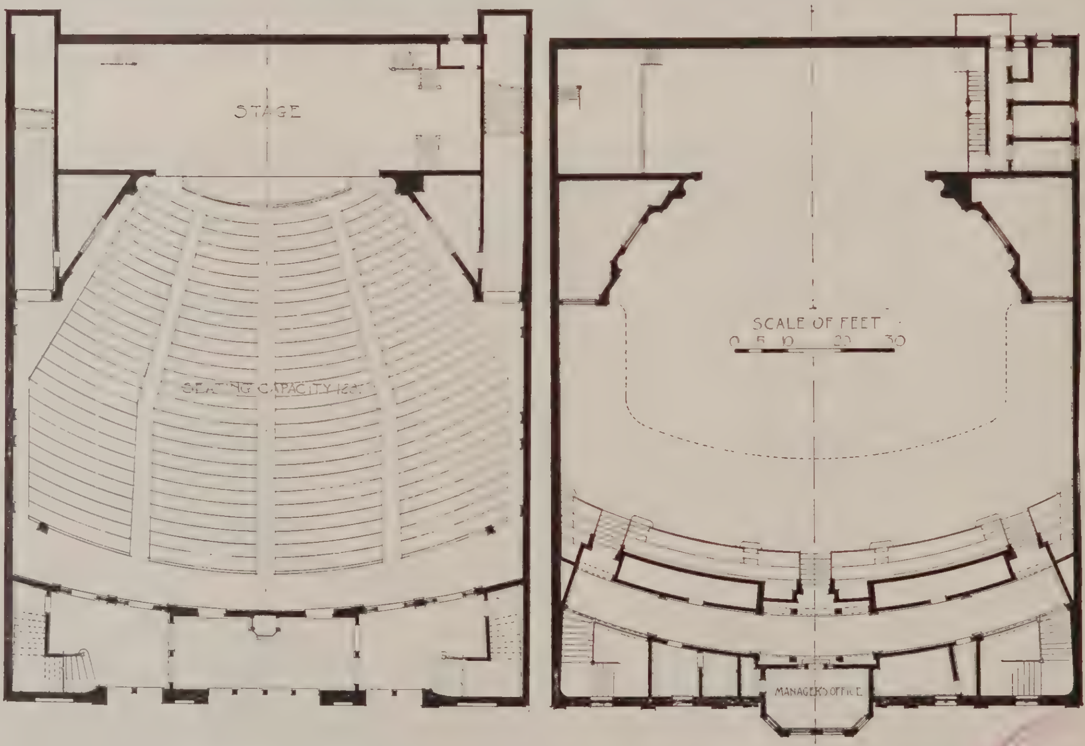
(Plans on Back)

THE PALACE THEATER, LAWRENCE, MASS.

BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS



BALCONY FLOOR



ENTRANCE FLOOR

MEZZANINE LOGE

PLANS, THE PALACE THEATER, LAWRENCE, MASS.
BLACKALL, CLAPP & WHITTEMORE, ARCHITECTS

Ventilating and Cooling of Motion Picture Theaters

By D. D. KIMBALL, *Consulting Engineer, New York*

IT is to be noted that the title chosen for this paper does not specifically include heating. In the case of the auditorium, or theater proper, the heating problem exists only in its simplest form, and is usually solved by placing a number of radiators adjacent to entrance and exit doors, such radiators being placed in recesses covered with grilles in number sufficient to offset the cooling effect of the walls and doors. The amount of radiation thus determined will usually be found to be sufficient to keep the theater warmed to about 50° in winter.

There are two points in theater buildings at which ample heating is most essential. The first of these is at the main entrance lobby and foyer, at which the maximum amount of heat possible must be provided to prevent cold air blowing into the theater through the constant opening of doors, which, unless the lobby is thoroughly warmed, will cause most objectionable drafts at the rear of the orchestra. Whenever possible the heating of the main entrance lobby should be accomplished by means of a separate fan system, supplying a volume of air equal to a change of the cubic contents of the entrance lobby and foyer once every one or two minutes. The most efficient method of introducing this heated air into the lobby is through grilles placed at each side of each entrance door. If, as is usual, there are two sets of doors into the lobby, both sets of doors should be thus equipped. In this way the cold entering air is immediately warmed to a sufficient temperature to keep the lobby warmed. A second row of grilles at the second row of doors will provide any additional heat necessary, so that by the time the air entering through the doors reaches the theater, it will be thoroughly warmed, and thus no objectionable drafts will be experienced by anyone in the theater. The heating coils to warm this air should be capable of raising the temperature of the air entering the lobby through the door grilles to at least 120°. In some cases the grilles at the sides of the second, or interior, row of doors are utilized to draw air to the inlet of the fan, by which means recirculation is accomplished, and fewer heating coils at the fan are required. Direct radiation should be provided in the lobby in any event, however, to keep the space warm at times other than during performances without the necessity of running the fan. Another method of warming lobbies is to provide direct radiation in recesses in the lobby and to pass air from the theater fresh air supply system over these radiators into the lobby. Use of either of these methods presupposes some air pressure in the lobby to counteract the outside air pressure blowing in at the doors, but the method first suggested accomplishes this purpose to a greater degree in that the air pressure blowing into the lobby may be increased independently of the pressure at which the air is blown into the theater proper under usual conditions. Thus are treated the conditions at doors.

The second point at which direct radiation is of greatest importance is on the stage. Rarely will the amount of radiation here required be for less than 1,000 square feet, and frequently it will be for as much as 2,000 square feet. If the stage is not thoroughly warmed the front portion of the orchestra will always be cold, and this frequently occurs because of lack of sufficient radiation on the stage. In all cases the radiation should be thoroughly distributed, and an ample portion thereof should be placed near doors or entrances from outside to the stage. Where the stage walls are high, it is desirable that the radiation should be divided and placed at two or three levels on the exposed walls,—one-third about 6 feet above the stage floor, one-third about 24 feet above the floor, and the remaining one-third from 40 to 50 feet above the floor. Additional radiation should be provided in the form of a pipe coil in the skylight over the stage for efficient heating.

If the front of the stage over the proscenium opening extends well above the roof over the theater proper, a coil should be placed on this wall directly over the proscenium opening in the manner indicated in one of the illustrations herewith. Dressing rooms, retiring rooms, and other auxiliary rooms will require direct radiation sufficient to heat these rooms to 70°.

The heating boilers may be of any suitable type, but they should be selected of very ample capacity because of the intermittent operation of the heating system and the large demand made upon the boilers by the ventilating system. For larger theaters the fire box type of boilers is especially adaptable, but for small theaters cast iron sectional boilers may sometimes be used. The boiler, or boilers, should not be placed under the theater proper, the stage, dressing rooms, or lobbies, entrance, exits, etc.

The heating installation may consist of a gravity two-pipe system, but the vacuum return line system is preferable because it is quicker in operation, more efficient, and more economical in fuel consumption.

The piping system should be so divided that the different departments of the building may be served independently. The division of heating mains should be substantially in some such manner as this:

One set of mains for the theater proper.
“ “ “ “ “ “ lobbies.
“ “ “ “ “ “ stage.
“ “ “ “ “ “ dressing rooms.
“ “ “ “ “ “ store and offices, if such are included.
“ “ “ “ “ “ hot water storage tank.
“ “ “ “ “ “ house and sprinkler tanks of all kinds.

Each set of mains should be valved at, and be run from, the main boiler header. Mains for the stage and dressing rooms are sometimes combined in one system, and sometimes the mains for stores and lobbies are similarly combined to some advantage.

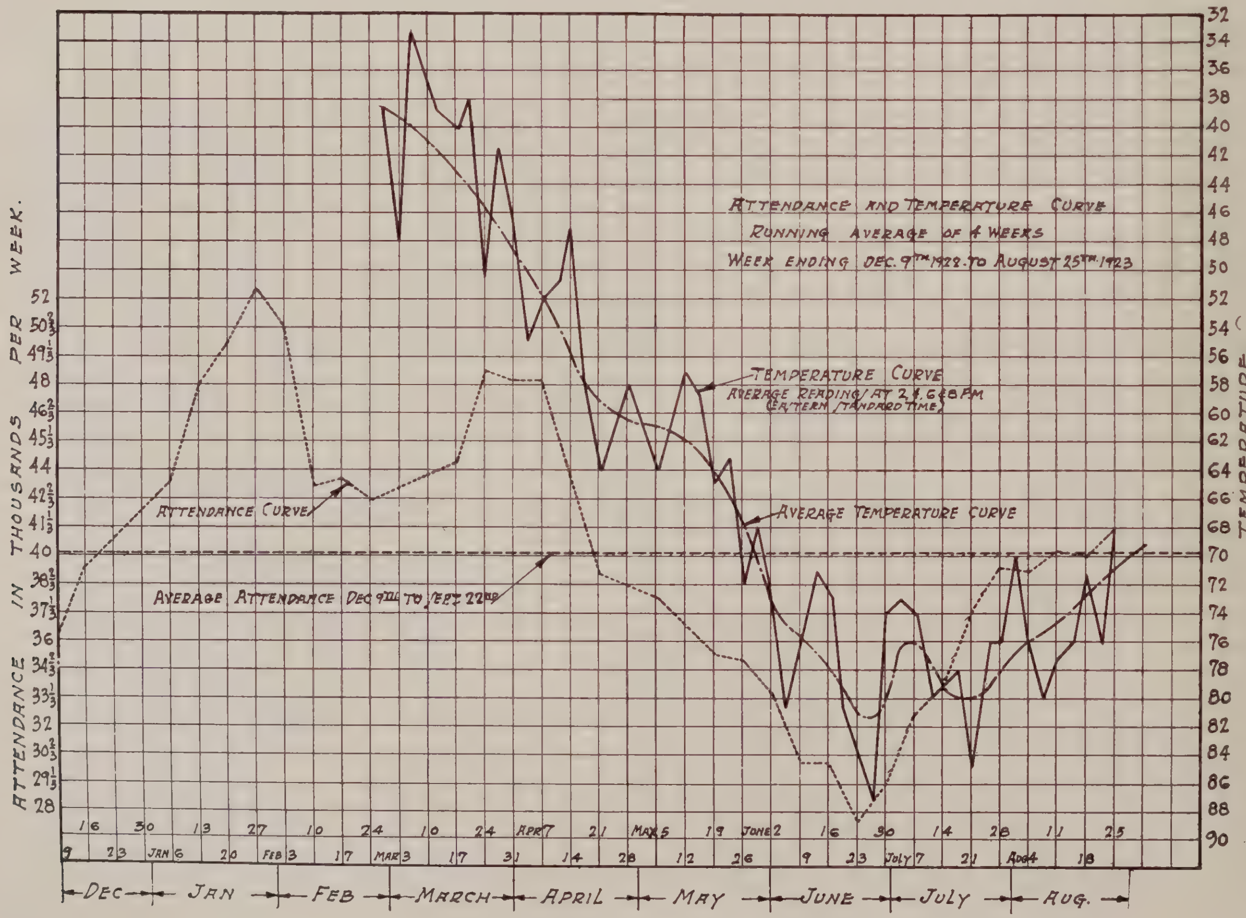
The vacuum return line heating installation simplifies this division of mains in that the return main can be a common return for the separate piping systems already described. The vacuum return pumps of a vacuum return line system should be automatically controlled in their operation, and should be installed in duplicate so as to insure continuity of operation of the entire heating system.

Because of the extensive nature of the piping system, all heating mains should be covered with a high grade of insulating material. The boiler and smoke pipes should be covered with similar material over a 1-inch air space to give necessary protection.

It has already been said that warming the theater proper, that is the auditorium, does not involve a heating problem. The fact of the matter is that this is really a de-heating problem, that is, the problem is that of taking off the heat and moisture (and odors) from the occupants of the seats. This can be properly accomplished only by an adequate and complete ventilating system. Such a system is a complete system only when it includes a fresh air supply system and an exhaust system, both of these being mechanical. The distribution of the fresh air inlets and the exhaust outlets must be such as to insure the flushing of every portion of the theater.

The quantity of air supplied and removed by the ventilating system bears a direct relation to the number of persons whom the theater may accommodate. No thoroughly defined and generally accepted volumetric standard of air supply for theaters exists. With 10 cubic feet of air per minute per occupant supplied, the temperature of the air in passing through the theater will be raised from 11 to 14 degrees, which means that in order to keep the temperature of the theater at 70° or less the air must be introduced into the theater at a temperature as low as from 55 to 60°. Especially when the air is introduced into the theater through the floor, this low temperature of the entering air will cause objectionable chilling of the occupants of the seats, with consequent complaints of drafts. Hence a supply of air limited to 10 cubic feet of air per person per minute is found to be too small to give satisfactory ventilation. Fifteen cubic feet of air per person per minute is the least that may be safely used, and 20 cubic feet provides only a good and generally satisfactory result in ventilation. Twenty-five cubic feet is the desirable standard, and in some cases 30 cubic feet of air per occupant per minute.

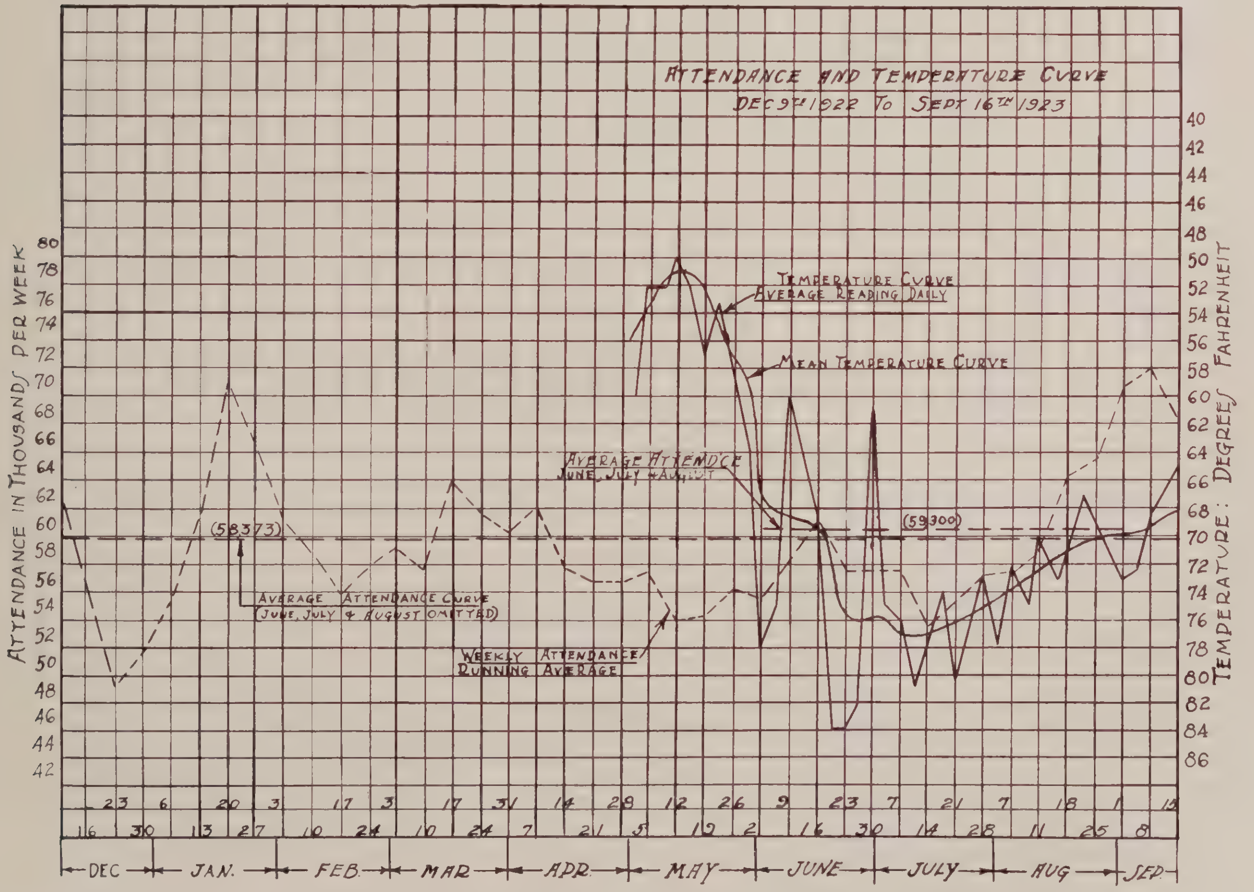
The attempt to make a single supply fan, or a single exhaust fan, or both, serve the entire building is wrong in principle and in practice. The fans



Outdoor Temperature and Attendance Record of a Theater Artificially Cooled which serve the theater proper should not be used to serve any other portion of the building. Separate fans should be provided for the toilets and retiring rooms, for the lobby, for the picture machine booth, and for other special rooms, if any such there are.

A great deal has been written upon the question of upward versus downward ventilation, that is, whether the air should be introduced through the floor and be exhausted through the ceiling, or be introduced through the ceiling and be exhausted through the floor. There is a very logical and practical explanation of the better results obtained with the downward system. Theater ventilation is, as has been said, at all times, a problem of de-heating or cooling, since its real purpose, quite aside from that of supplying fresh air and of providing air movement, is to remove the heat and moisture given off by the occupants of the theater. To do this, while maintaining a theater temperature of approximately 70°, that volume of air customarily used for ventilation must be admitted to the theater 11 to 14 degrees below the desired theater temperature during the winter, and with a greater temperature difference, if possible, in the summer. Admitted through the floor, this cool air strikes the feet and lower limbs of those in the seats, causing discomfort and complaints in proportion as the general temperature of the theater is kept down to a proper degree. Admitted to the theater through the ceiling, the air gradually picks up the heat increment and passes over the occupants of the seats at the correct temperature, causing no complaints. This method of air supply will provide a uniformity of temperature in the theater which may be assured by no other.

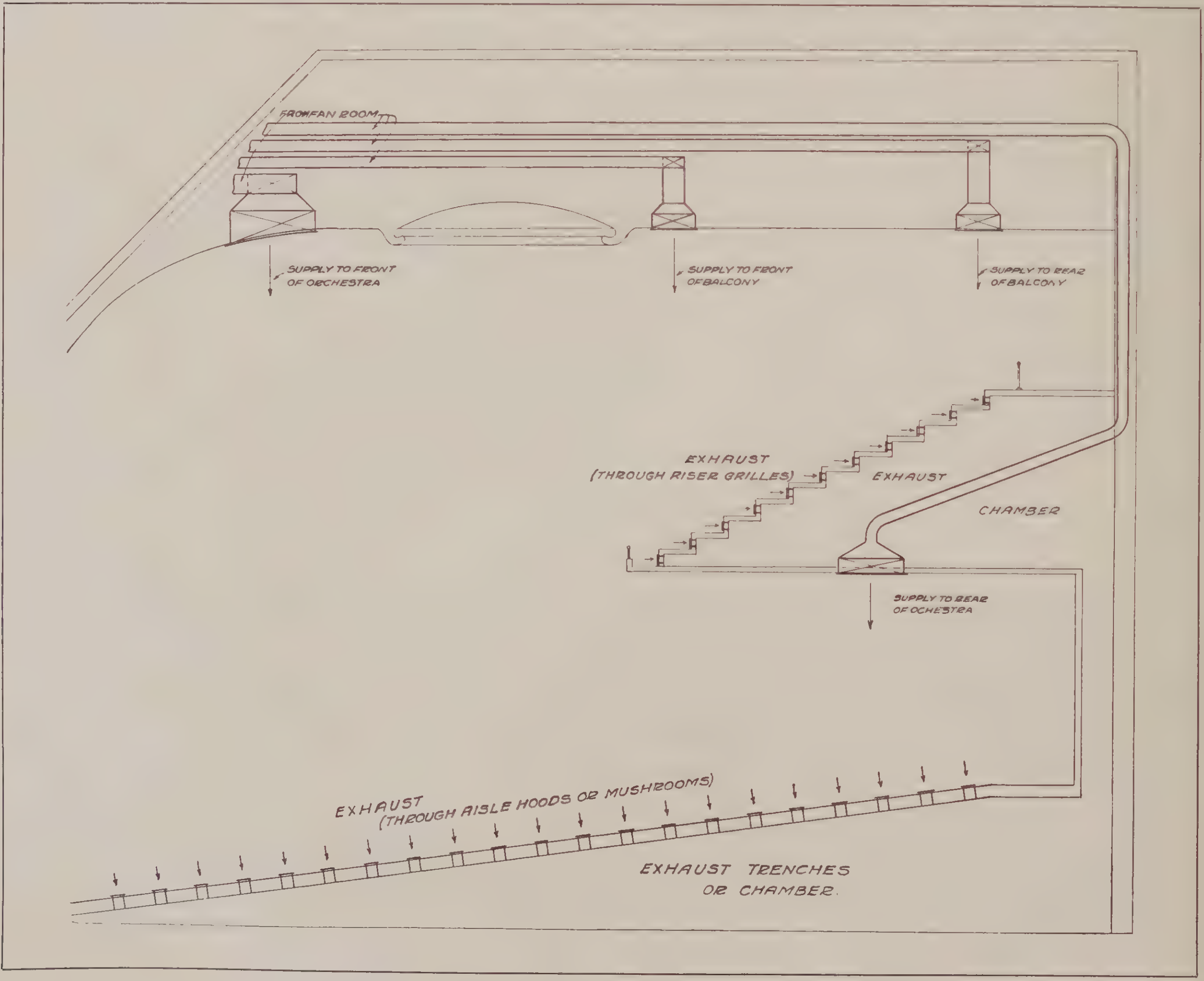
The theory has been advanced that the downward flow of the air supplied is contrary to the upward force given to the air by the heat from the people. Compared with the moving force of the fans, the upward effect of the heat from the people is entirely negligible, so that the downward movement of the air suffers no handicap thereby. The advantages of the downward supply of fresh air become increasingly important if a cooling installation is made, because of the fact that the air frequently must be introduced at a relatively low temperature in hot weather, and were air of such a low temperature admitted through the floor serious complaint would be made of the chilling effect of this low temperature air. The fact must not be overlooked, however, that in some cases the construction of the theater is such that only the upward supply of air is possible within the limits of a reasonable cost of installation. In the case of the upward supply through the floor, dust (and particularly the dust brought in on the feet) is carried up into the air. Especially when utilizing the upward supply of



Outdoor Temperature and Attendance Record of a Theater Having No Cooling System air, it will be found that there are varying temperature conditions in different sections of the theater. The front of the orchestra is invariably the coldest portion of the house. The rear of the orchestra, under the balcony, where the construction of the balcony provides a low ceiling, is a congested spot in which the temperature always builds up. Again, the front of the balcony will be found higher in temperature than the front of the orchestra, and the rear of the balcony will be found the warmest section in the house. It is highly desirable that the ventilating system should be so arranged that the air supplied to the different portions of the theater may be introduced at different temperatures. Manifestly, therefore, it is not possible to conduct the air directly to the seats at differing temperatures, but with a properly designed system and properly located inlets the air may be admitted to the theater directly over these various areas at sufficiently differing temperatures to maintain a practically uniform temperature throughout the theater. Without such division of the air supply system temperatures in theaters are frequently found to vary as much as from 12 to 18 degrees in different portions of the house, making some portions thereof almost unbearable. In the case of the Capitol Theater, New York, seating 5,400 people, the difference in temperature at any two points in the house never exceeds 2 degrees. The diagrammatic sketch here illustrates the method outlined herein for thus governing the temperatures of various portions of the theater.

The worst features of theater ventilation are closely allied to over-heating. Only an adequate and properly arranged system of automatic temperature regulation will prevent this. Such a system should be designed to control the temperature of the air admitted for ventilating purposes, and to control also the direct radiators in the important rooms.

At the present time nearly all theater ventilating installations are designed to make possible the recirculation of a considerable portion of the air used for ventilating the theater during cold weather. A properly designed recirculating system will fulfill every demand of good ventilation, and at the same time will reduce the coal consumption by 50 per cent as compared with the system operating with the entire supply of air taken at all times from the outside. The recirculated air, however, should be washed or be mechanically filtered to eliminate dust. During zero weather as much as 75 per cent of the


FROM FAN ROOM
SUPPLY TO FRONT OF ORCHESTRA
SUPPLY TO FRONT OF BALCONY
SUPPLY TO REAR OF BALCONY
EXHAUST (THROUGH RISER GRILLES)
EXHAUST CHAMBER
SUPPLY TO REAR OF OCHESTRA
EXHAUST (THROUGH AISLE HOODS OR MUSHROOMS)
EXHAUST TRENCHES OR CHAMBER.

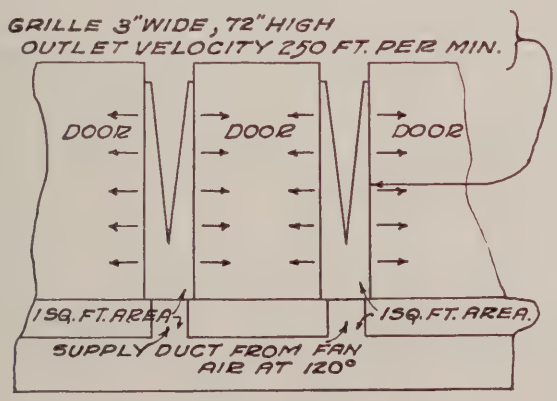
Method of Ventilating Rear of Orchestra and Balcony ventilating air may be recirculated, that is, be drawn from the theater itself, the proportion of recirculated air used being lessened as the outside temperature becomes warmer. Properly designed ventilating systems provide for the use of recirculated air in the simplest manner possible, and without a material increase in the cost of the installation.

In recent years many theater owners have installed so-called cooling systems, consisting merely of additional fans installed to supply a large volume of outside air during hot weather. Undoubtedly such installations accomplish much in the way of providing air movement and breezes in the theater during hot weather, and to this extent they are worth while; but they do not meet the demands of large theaters, since they do not actually lower by a degree the temperature in the theaters, nor do they even prevent a rise in temperature. Such installations constitute additional summer ventilating equipment, but they should not be called "cooling systems."

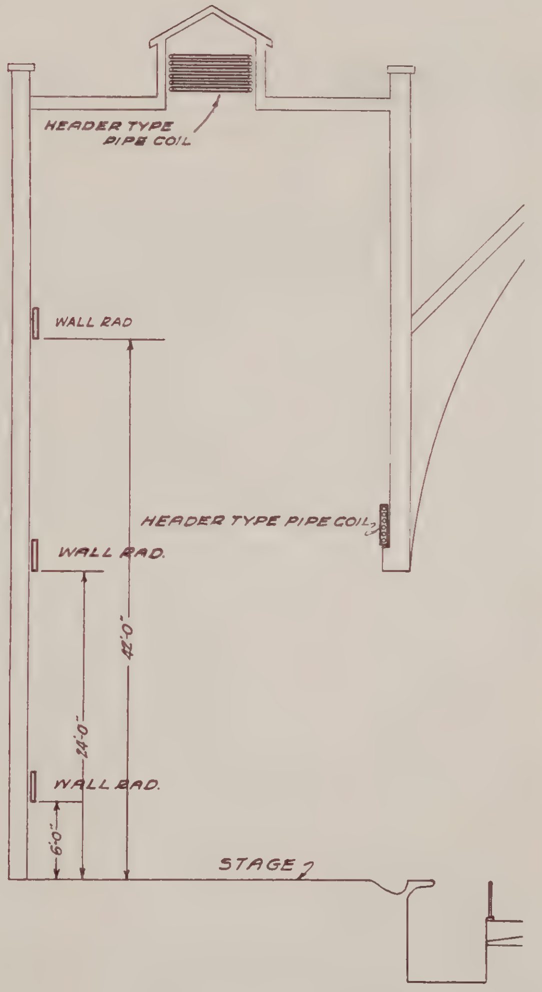
In some theaters the exhaust fans are so arranged that they may be used during hot weather to blow air into the theaters, that is the direction of the flow of air from the exhaust fans is reversed to provide an auxiliary summer air supply, thus supplementing the regular fresh air supply fan, leaving all of the air to be exhausted through the entrance lobby, exit doors, stage and elsewhere. This is often successful.

The demand for the actual cooling of theaters is growing by leaps and bounds. Two years ago there were but one or two thoroughly cooled theaters in the entire country. At the present time there are dozens such, and dozens more are installing such equipment. Two are being completed at this time in New York, others are contracted for, and the new Madison Square Garden, in New York, seating about 20,000 people, is to be provided with an air-cooling system which, under maximum conditions, will require the operation of 800 tons capacity of refrigerating plant equipment to secure good results.

Herewith there are shown two charts, the first of which represents the outdoor temperature record and the attendance record (during the same period) of a large theater. The temperature scale and curve are inverted, and a "running average" of three weeks' attendance is used. The cross-hatched area in this chart represents a loss of paid admissions in a single season, their value exceeding the entire cost of a refrigerating and cooling plant installation, plus operating costs. The second chart shows a similar record taken from a theater possessing a cooling installation, and shows an actual increase of attendance during the hottest days of the year over the average attendance for the remaining portion of the year. Such installations are increasing rapidly in number.



DETAIL OF AIR SUPPLY AT LOBBY DOORS



SECTION SHOWING DISPOSITION OF RADIATION ON THE STAGE

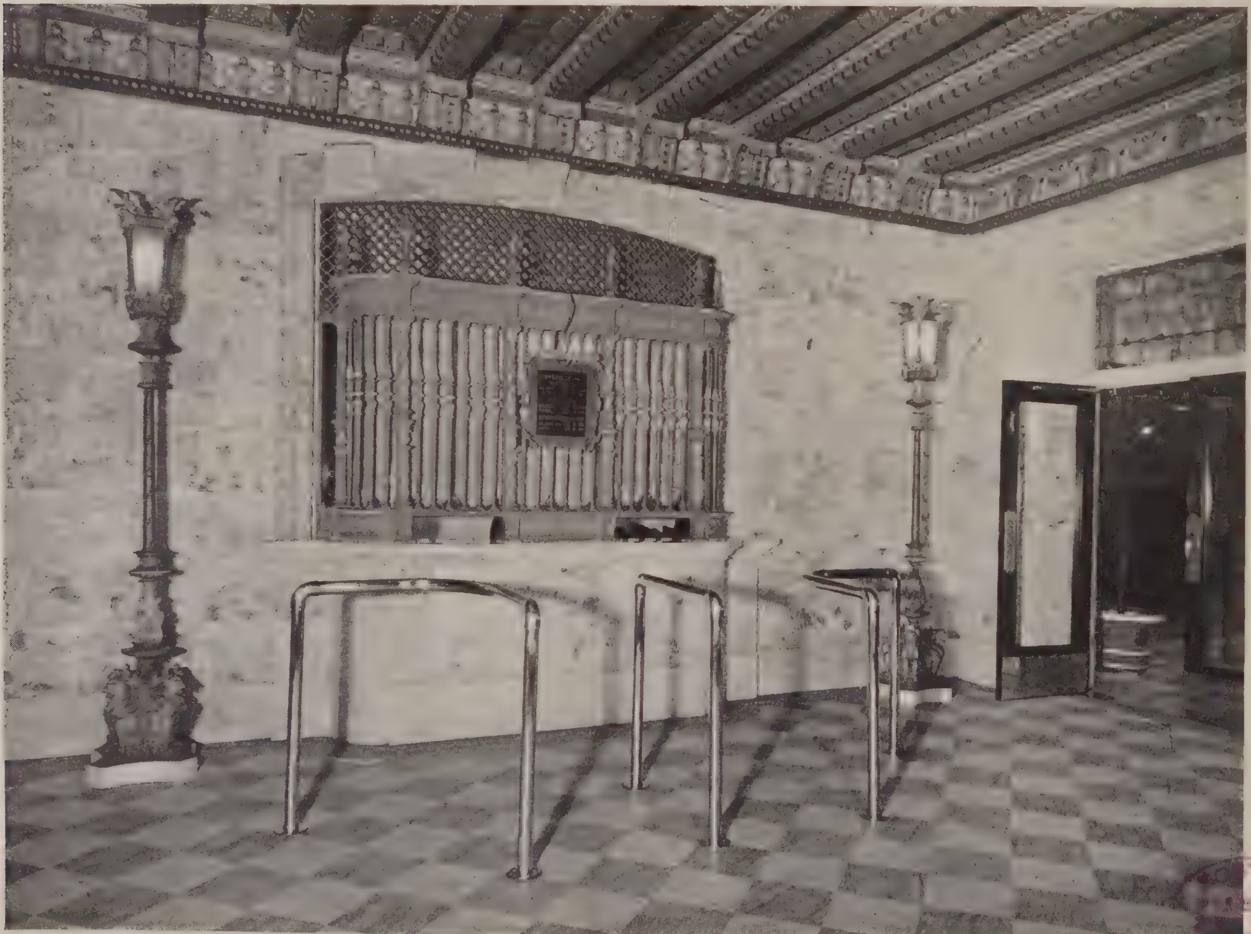
The only efficient, and the only real theater cooling system, the only one which will actually lower the temperature of the air in the theater, is that form of cooling installation which includes refrigerating plant equipment. The refrigerating installation required may cost from $12 to $15 per seat, and the adaptation of the ventilating plant to the cooling requirements may cost as much more. Nevertheless, such an installation may be counted upon to pay back the amount involved and the cost of operation within one or two seasons in the case of a motion picture theater, and within twice this time for others.

The considerable cost of such a cooling installation is due to the size and cost of the necessary refrigerating plant. Approximately 200 tons of refrigerating capacity will be required for a 3,000-seat house. The cooling installation requires, also, the inclusion of a de-humifying type of air washer, recirculating air ducts, special temperature and humidity regulating equipment, cork covering, water pumps, etc. The air admitted into the theater is cooled in passing through the de-humidifier, the water used in which is cooled by means of the refrigerating plant. A closed type of air cooler (strictly dry air cooling) may be used, if preferred, but this is unnecessarily expensive equipment.

The use of an ammonia refrigerating machine is manifestly undesirable in a theater building, unless it can be placed outside of and away from the building. CO_2 refrigerating machinery is largely used. This machinery has the advantage of being the simplest and least expensive of all to operate, and it requires the least space for installation. Such an equipment for a theater seating 3,000 people may be placed in a room 16 feet wide by 24 feet long and 10 feet high, its requirements being quite moderate.

The refrigerating machinery is necessarily placed in the basement because of its weight, and in some cities the refrigerating equipment must be installed in an entirely separate room without any communication with the building proper, entered from outside.

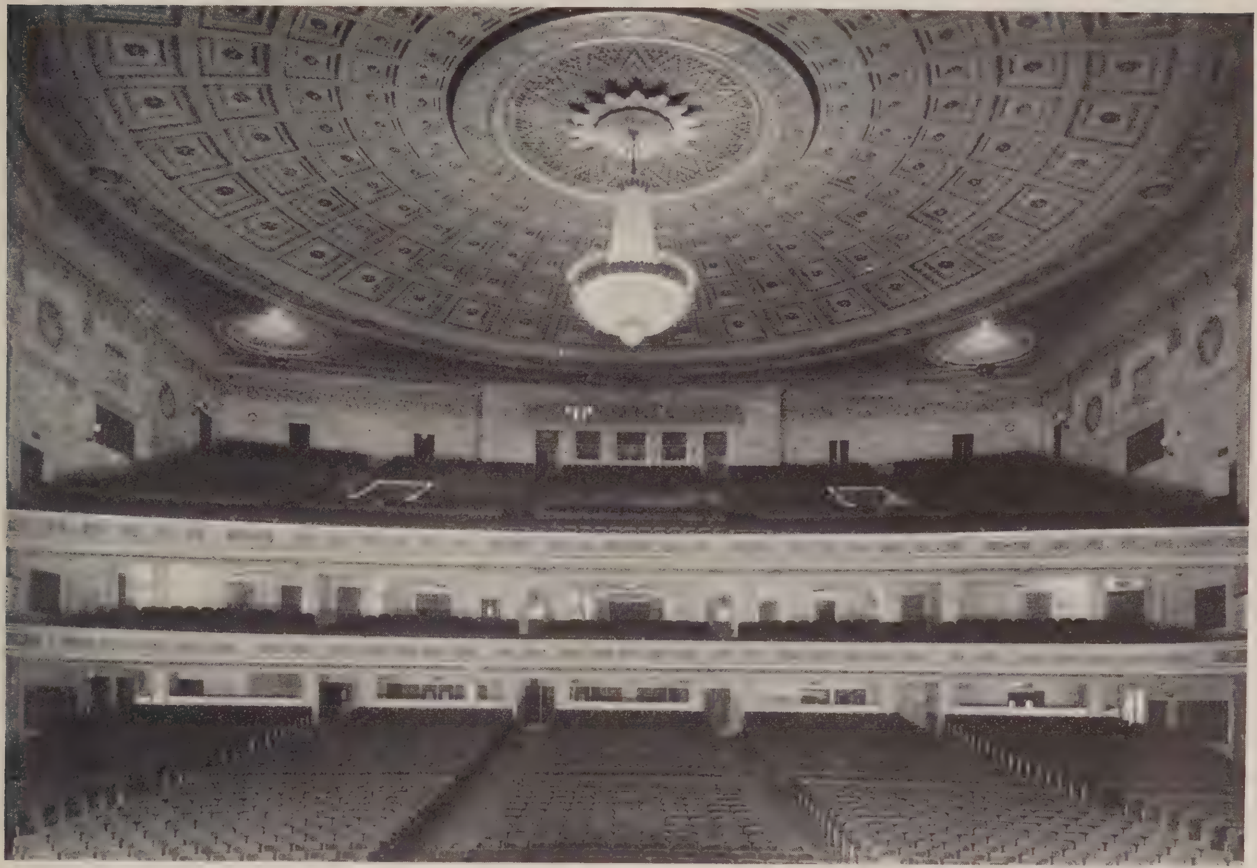
No phase of ventilating engineering demands more skill and ingenuity than does the designing of theater ventilating equipment. A vast amount of money may be wasted by lack of ingenuity, skill or experience. Poorly designed, badly arranged, or cheap installations invariably mean unsatisfactory results, complaints, and wasted money. Better no ventilation installation at all than a cheap one, for the result is the same as actual ventilation is concerned. Generally speaking, any expenditure made for ventilation which represents less than $10 per seat may be considered wasted, and considerably more can be advantageously spent upon this work.



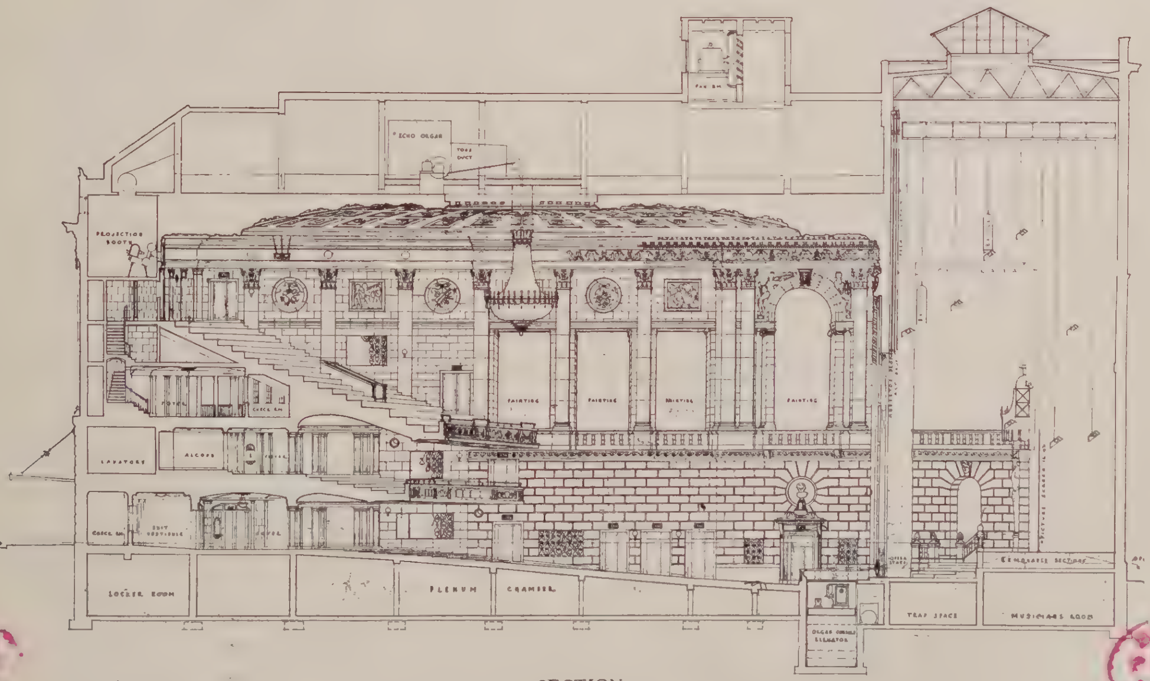
Entrance Lobby, Capitol Theater, St. Paul
C. W. and George L. Rapp, Architects

The Eastman Theater, Rochester

GORDON & KAELBER, Architects; McKIM, MEAD & WHITE, Associate Architects



AUDITORIUM OF THE EASTMAN THEATER, ROCHESTER



SECTION

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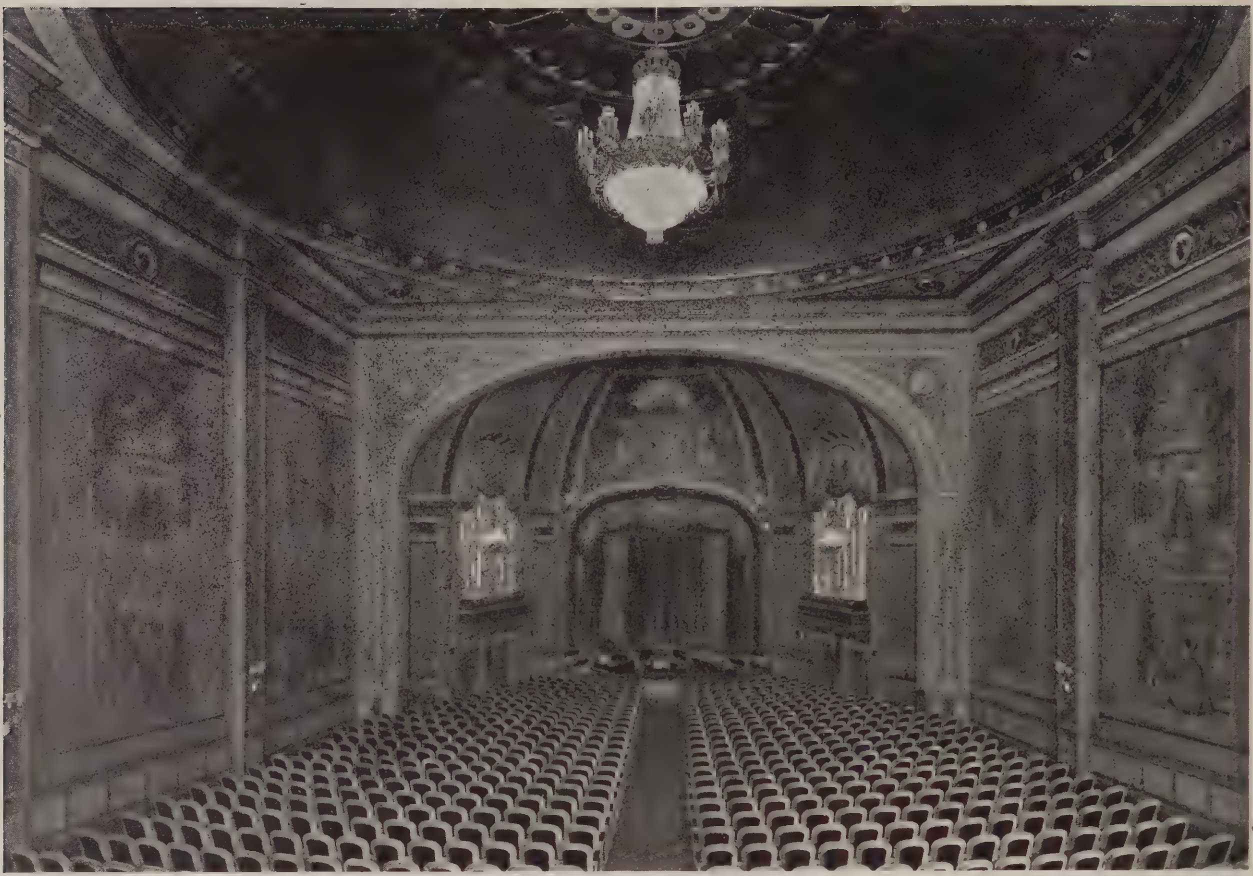
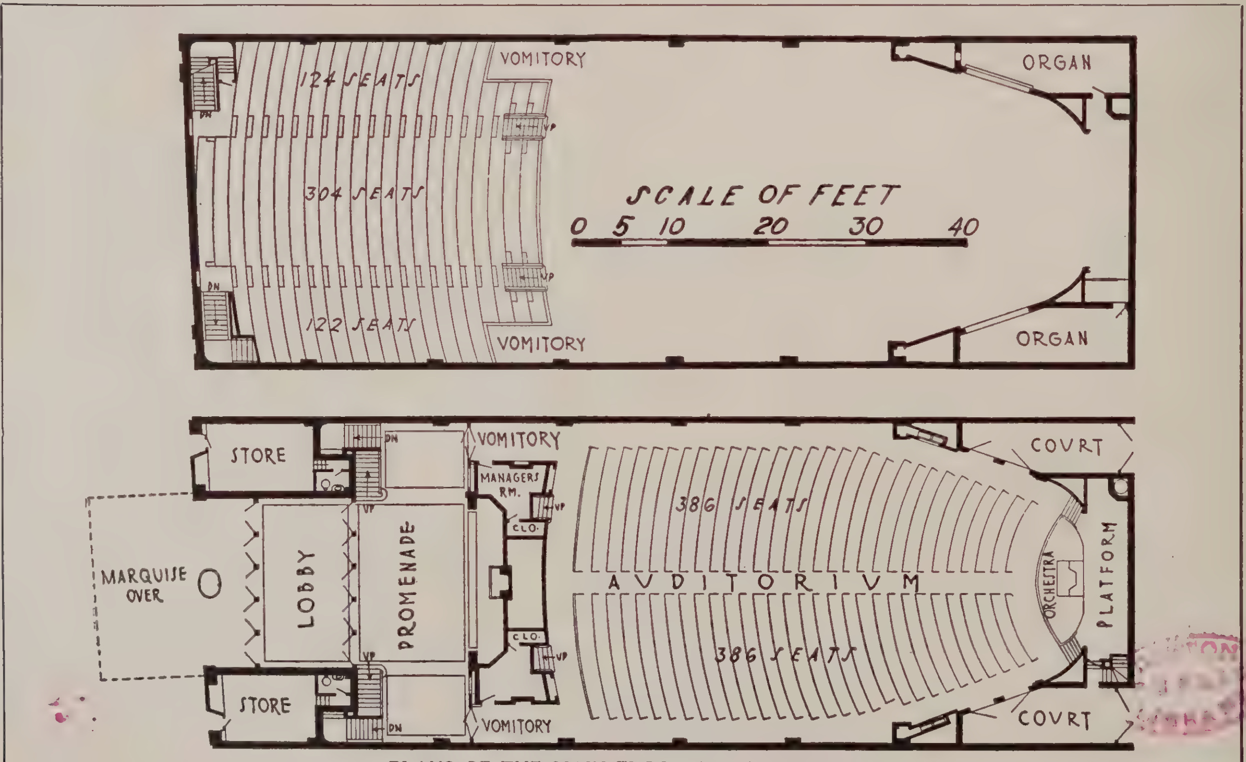
The Piccadilly Theater, New York

NEWTON L. SCHLOSS AND JOSEPH ORLANDO, Associated Architects



THE AUDITORIUM SHOWS QUAINT PAINTINGS IN THE WALL PANELS



PLANS OF THE MAIN FLOOR AND BALCONY

Organ Installations in Theaters

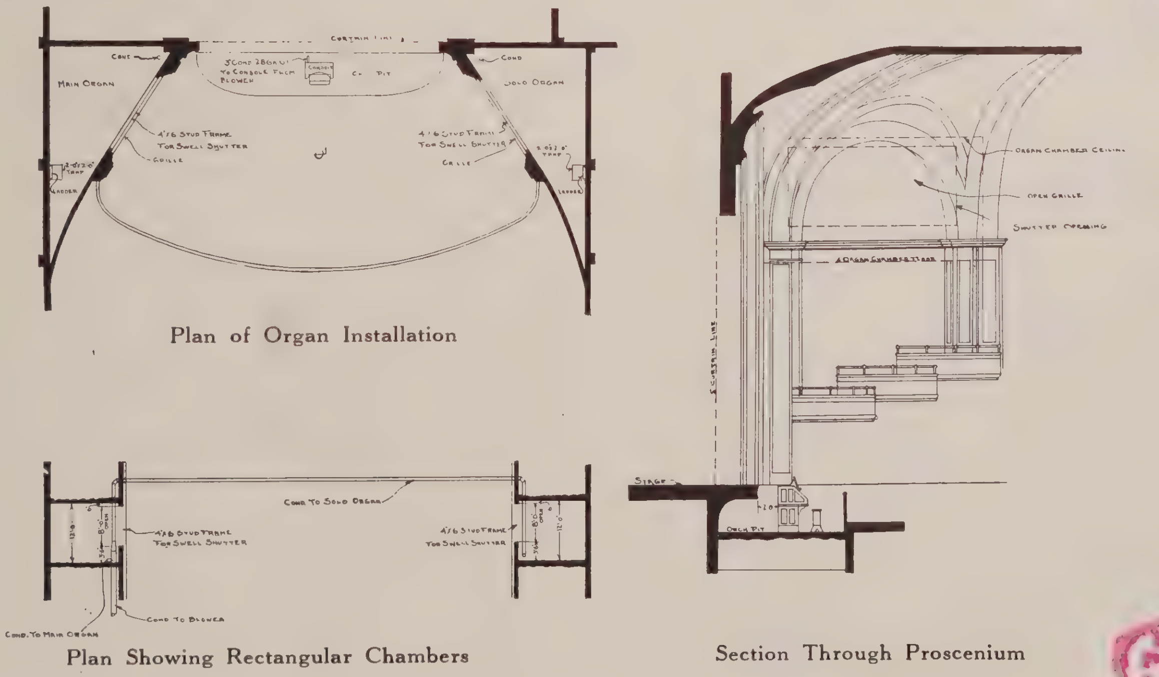
By ROBERT E. HALL, *Consulting Engineer, New York*

THE success of an organ in any theater is dependent to a very large extent on the proper installation of the instrument; the very finest organ may actually be a failure if improperly installed. The first essential in proper installation is location; the second is to have the proper openings through which the tone can come out into the auditorium, and the third is to have a sufficient amount of space so that the organ is not crowded. On the other hand, it is not wise to have too much space, although that error is seldom made in a modern theater. Most installations suffer from the lack of a proper amount of space for containing the organ.

Naturally each theater presents its own special problem, but the subject can be covered in a general way, particularly where new theaters are being planned, if organ requirements are given thought at the time of the actual planning. It is well to keep in mind that practically all parts of the organ, such as chests, are rectangular in shape. Even though the chamber must, of necessity in many cases, be of triangular shape, these rectangular parts of the organ cannot be changed from their original form, so obviously there is likely to be some lost space in a triangular chamber, compared to the area required in a rectangular chamber. All modern organs today are enclosed in chambers with Venetian swell shades to control the expression. These chambers should be built so that they are as soundproof as possible, to enclose the tone, and then by means of the swell shades to give modulation and expression to the music. In the beginning of organ building, the organ was built out in the open and had no expression. It then was improved so that one portion of the organ —the swell organ—was under control, but today all theater organs to be successful must be entirely under expression control, for the music's enjoyment.

The best method of installation to be made in a theater is to have, in the case of a small organ, one chamber on one side of the house, and in the case of a larger organ, chambers at both sides of the proscenium arch, in the space that is usually occupied by the boxes. These chambers should preferably be located about 10 or 12 feet above the level of the stage, not too low to have the tone strike directly the people that are sitting in the front seats, and not too high to prevent the tone's getting under the balcony, if there is a balcony in the house. It is a well recognized fact that the rear seats on the first floor, under the balcony, are invariably those where it is most difficult to hear the music, but by properly placing the organ, this difficulty is overcome. Fig. I shows the installation planned as suggested,—at the sides of the proscenium arch, half on each side.

Another very satisfactory location for an organ is to install it above and in the center of the proscen-



Plan of Organ Installation

Plan Showing Rectangular Chambers

Section Through Proscenium

Fig. 1

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ium arch, with a deflector outside of the organ chamber to deflect the tone down in the direction of the orchestra pit. This tends to make the tone spread under the balcony, giving excellent results, since the tone fills the entire house. See Fig. II.

The size of the organ chamber depends upon the size of the organ, and the size of the organ is governed very largely by the size of the theater. Naturally, a theater seating 3,000 requires a much larger organ than one seating 1,000. A minimum height in the organ chamber of at least 11 or 12 feet is essential. In the case of a large organ a greater height is of course necessary. Suitable openings must be left for the expression shutters in the chambers. The length of these openings depends on the size of the chambers. In general the length of the swell shutter openings should be 85 per cent of the length of the chamber, and the height of the opening should be in the neighborhood of 7 feet, the opening beginning, in the case of the average chamber, from 4 to 5 feet above the organ chamber floor. If the chamber is high, then the opening should be still higher. The tone comes from the *tops* of the pipes, and for that reason it is essential that the swell shutter openings should be at the top of the chamber and not at the bottom. These swell shutter openings must of necessity, in order to get proper results, be horizontal with the chamber and not vertical from top to bottom, as is occasionally suggested by architects who have had but a limited experience with organ installations. The grille work in front of the openings referred to, where the expression shutters go, should be composed of at least 70 per cent of open work, so that the tone is not impeded in its progress from the chamber to the theater.

Around the swell shutter opening in the chamber there should be placed a wood stud frame, consisting of say 4 by 6 studs, to which the expression shutters can be fastened. Regarding the construction of chambers, there are a number of different forms that can be employed,—(1) hollow tile, plastered on both sides; (2) metal lath and plaster with sheathing quilt in between; (3) concrete. Whichever form of construction is decided upon, the inside walls should be plastered and painted to form a hard finish for reflecting the tone, and also to guarantee that the chambers will be free from grit or dirt, since both of these are enemies of the organ.

The location of the blower should be properly arranged in the basement, so as to limit the possibility of noise being heard in the theater. A good concrete floor is necessary for the blower, and where possible the air for the intake of the blower should be derived from the outside, usually easily arranged.

The console or key desk of the organ should be placed in the orchestra pit, the center of which is the best location, especially where the organ is divided, with part on each side of the house, as it gives the organist the opportunity to judge his playing from a central position. This and the other details of organ planning and installation should engage the most careful and thoughtful consideration at the hands of the architect, since organs are being more and more widely used to supply the music which means so much to patrons of a motion picture theater, and which depends so greatly on the organ's arrangement. Indeed, the organ is among the vitally important adjuncts of a motion picture theater, and as such it demands consideration. These apparently small details are vitally important.

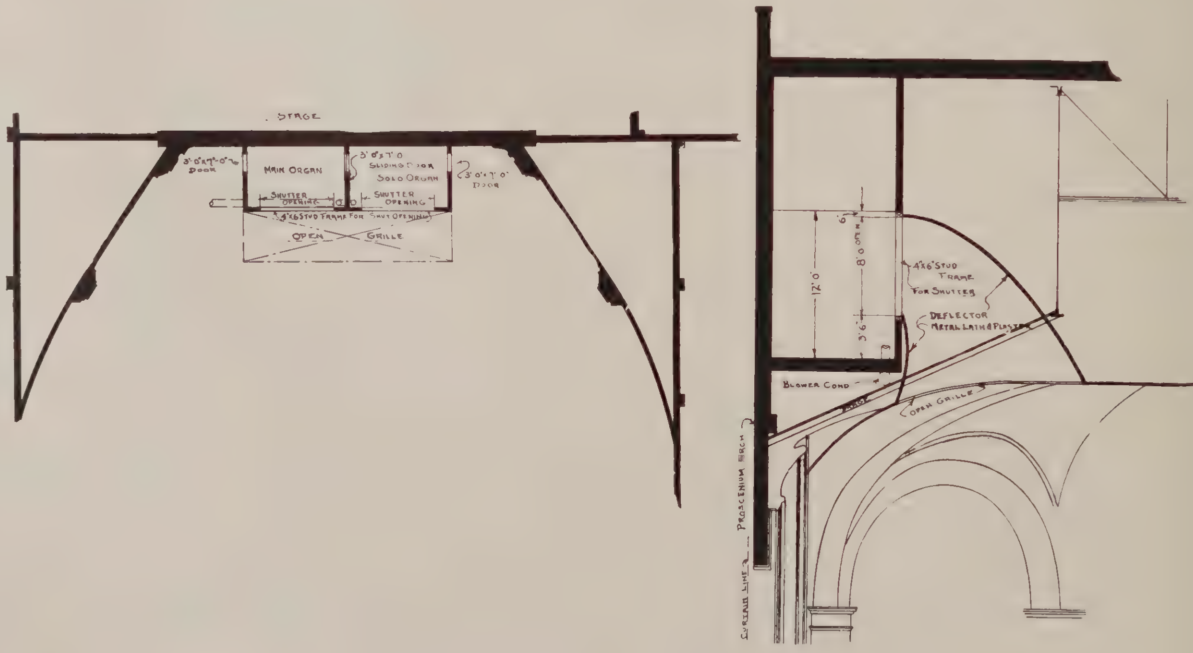


Fig. II. Plan and Section Showing Organ Above Proscenium

The Design of Theater Projection Rooms

By J. H. KURLANDER, *Electrical Engineer, Harrison, N. Y.*

IF this article had been written four or five years ago, it would have been essentially one of criticism,—not altogether of the constructive sort. Coming as it does at this time, it must be tempered with mildness and strike merely a cautionary note.

A motion picture theater consists primarily of three things: an auditorium, a screen, and a projection room. All other equipment, however necessary and useful, can be considered as being merely accessory to these three things. From the standpoint of presenting a show, the projection room, or "booth" as it is sometimes inelegantly referred to, is undoubtedly of the greatest importance. The auditorium, however elaborate, is merely a comfortable viewing place for the patrons. The screen is only a medium for rendering the picture visible to the assemblage, and serves as a register for the skill of the projectionist when presenting the show.

The projection room, however, is equivalent to the back stage area of the legitimate theater, with its various "props" and equipment for putting the show across. Lack of equipment or poor design will unfailingly reveal itself in the form of reduced box office receipts. In the formative years of the "picture parlor," the "booth" consisted merely of a cloth-covered structure housing the lone projector, which spilled the film on the floor or into a waste paper basket. Considerations of safety and efficiency made necessary marked changes in such practices by progressive stages, and recent years have witnessed a decided change of attitude toward projection room design on the part of both architects and exhibitors. That the lesson has not been fully learned, however, is evidenced by the fact that here and there projection rooms are encountered which all too plainly point to either gross ignorance or gross negligence on the part of the architect. The blame for such blunders rests squarely upon his shoulders.

At first thought it would appear as though mistakes would occur most frequently in the smaller theaters, designed by men having only limited experience in this field. This is far from being the case, since only recently one of Washington's largest and newest theaters experienced difficulty when the architects unwittingly attempted to project the picture to the screen through several large crystal chandeliers! Meeting no success along these lines, and being unable to move the chandeliers without destroying the symmetry of the interior, the services of a projection engineer were obtained, with the result that a periscopic arrangement was used to shunt the projector's beams down and around the offending luminaires! The periscope, by the way, consisted of two large, thick, plane mirrors tilted at such an angle as to deflect the beams sufficiently to clear the obstructions. Needless to say, such an arrangement is at best a makeshift, and the projection in this theater will never be up to the mark or give satisfaction.

It is sometimes possible to avoid such an expensive solution by lowering the projectors, where sufficient clearance under the obstruction can be obtained. This was done in a large, new high school building in a certain Long Island town about one hour's ride from New York. Here the architects tried in vain to shoot the light beam through a 20-inch concrete ceiling beam near the "booth." Since chipping out the beam would obviously weaken the structure, it was decided to saw off the projectors' legs, which would give the requisite clearance. The fact that the projectors were so low as to force the projectionist to assume a camel-like posture beside them evidently received no consideration, and in the minds of most of the persons concerned, it deserved none. The light was on the screen,—what more could one reasonably ask?

Going from one extreme to the other, a certain theater in Orange, N. J. was recently renovated, and new trappings, organ, fixtures, and projection room were included on the program. By some freak of plan, the portholes in the front wall of the projection room were misplaced, with the result that standard projectors could not be used. Special long legs were required to raise projectors to a level with the portholes. The lamphouses were then on a level with one's head, and since the projectionist would obviously be required to possess a rubber neck if things were left this way, a concession was made by constructing a platform 18 inches high beside each projector. And so it goes with careless architects.

Projection Room Location

The first thing to do when designing a projection room is to choose its location. By this is meant not so much its location at the rear of the theater, but rather its location with respect to the entire auditorium. Motion picture theaters of today fall into these three separate and fairly well defined classes:

1. Combination vaudeville and picture houses, possessing two or more balconies each.
2. Main-floor theaters, usually of small size, possessing no balconies.
3. Large theaters, possessing but one balcony each.

In Class 2 theaters the projection room is ordinarily placed at the rear, and the requirements are fairly simple. Class 1 theaters do not offer much leeway in the choice of a location, since the picture is more or less incidental to the program. The principal consideration here is to place the projection room where it will require the removal of as few seats as possible. In Class 3 theaters, however, there are two locations from which a selection can be made. One is obviously at the rear of the auditorium, using a

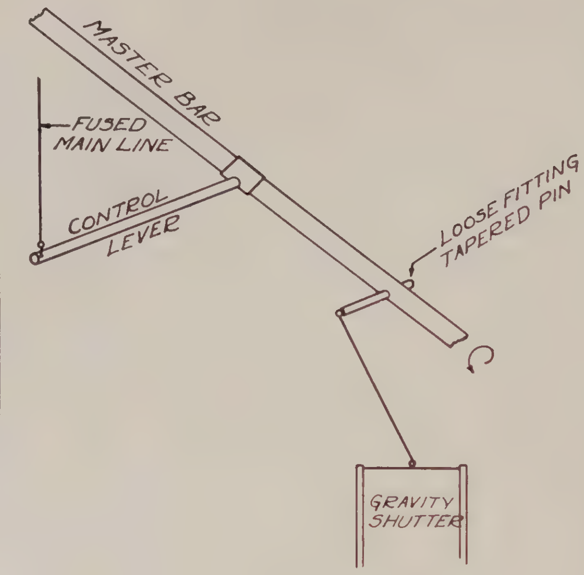


Fig. 2

plan such as is now common practice, and the other is at the front and center of the balcony. The latter location is much to be preferred over the other for a number of good reasons. In the first place, the tendency in this class of theater is to go to extreme depths (200 to 300 feet), which makes the projection of satisfactory pictures quite a problem when the projectors are located at the rear of the auditorium.

The light intensity in the projector beam, contrary to recently held popular opinion, varies inversely as the square of the "throw," or projection distance. Hence, on extremely long throws, such as those just mentioned, it becomes necessary to use the high intensity arc with its disagreeable blue-white color. This color, which kills practically all color value in the film itself, has been attacked with the object of removing it, but so far unsuccessfully. The high intensity arc, too, is more expensive both in first cost and maintenance than the other forms of projection devices. Indeed, it was only the recent commercial manufacture of fused quartz which solved the condenser breakage problem of this outfit. At such long projection distances it is practically impossible for the projectionist to determine with the naked eye whether the picture is in focus on the screen.

With the projection room located in the central front part of the balcony, however, the projection problems become relatively simple. Less expensive and more efficient types of projection systems can be used. It is often possible to use the special incandescent motion picture lamp, where conditions are favorable, thus securing the benefit of maximum efficiency at lowest cost. The conditions in this case approach those of the ordinary theater of medium capacity, and consequently are satisfactorily handled.

Avoid Heavy Projection Angles

Aside from the distance of the projection room from the screen, the most favorable location is that on a level with, and exactly on, the center line of the screen. It is not often possible to meet this condition except in the case of Class 2 theaters, so that some projection angle is generally unavoidable.

The old vaudeville houses, later equipped for motion picture projection, are the worst offenders in this respect. With the projectors located up in

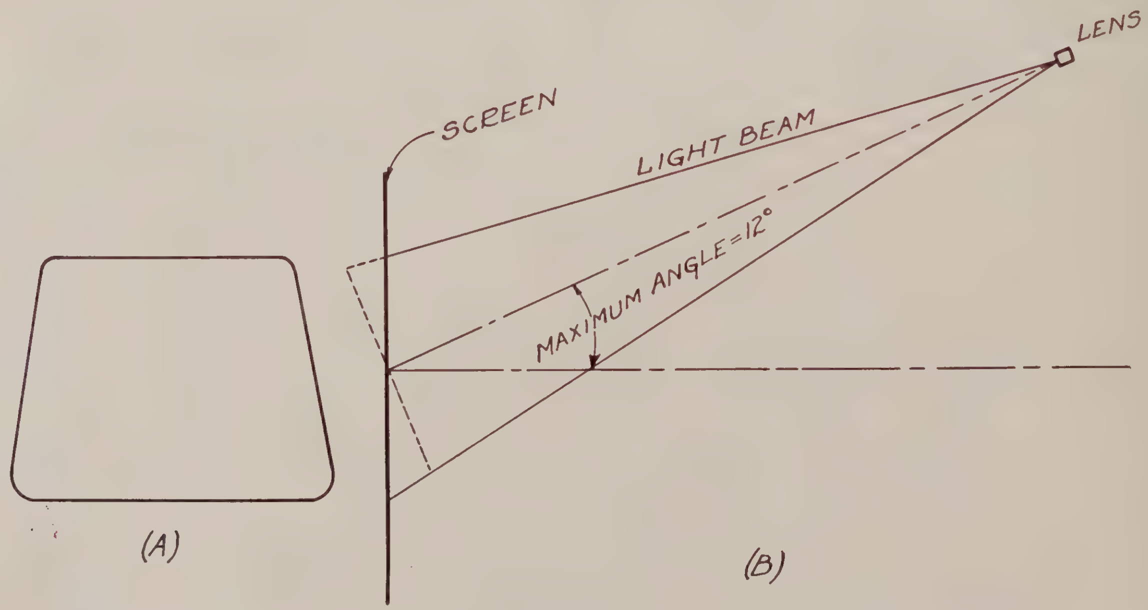


Fig. 1

"nigger heaven," to use the parlance of the streets, the projection angle has often become so great that intolerable distortion of the picture has resulted. An excellent, or rather bad, example of this is in a large vaudeville house in Newark, where it becomes positively annoying to watch the pictures. The effect of a heavy projection angle is illustrated in Fig. 1. Since the projector beam is of a diverging wedge shape, it will be seen that the top of the beam, striking the screen first, will be narrower than the bottom of the beam which travels farther, so to speak. The result is a "keystone" effect, illustrated here. This naturally distorts the picture, and a screen actor, under such conditions, would have a small head and enormous feet. The Society of Motion Picture Engineers recommends that the projection angle should not exceed 12°, in order to insure satisfactory projection.

Aside from the distortion of screen objects, which occurs when the projection angle is excessive, it is also impossible to properly focus all parts of the picture simultaneously on the screen, since the projection lens can only focus one plane at a time. Hence, if the center of the picture is "in focus," the top and bottom screen areas will be "out of focus." Focusing any one particular area is therefore accomplished at the sacrifice of definition in the remaining areas.

Recommendations

The first consideration in the design of a motion picture projection room is obviously that of safety. This element of safety can be looked at in two ways. It is first necessary to render the projection room fireproof, so as to confine therein any conflagration which may originate in the room itself. This is taken care of by the physical construction of the room.

The second requirement is that of panic prevention. The film now in use, the precautions taken in handling it, and the improvements in projector construction have all contributed to reducing the fire hazard to such an extent that film fires are now few and far between. When they do occur, they are largely due to gross negligence on the part of the projectionists. The greatest danger, when a fire starts, lies in possible panic among the audience. For this reason it is necessary to close all openings in the projection room which lead to the auditorium.

A commonly used method for securing such control is illustrated in Fig. 2. This consists, briefly, of a master bar to which are attached the drop shutters by means of tapered pins loosely fitted in holes drilled through the master bar. These pins are held in place by turning the master bar a quarter of a revolution by means of a control lever, which lever is then held in place by means of a master fused line, to which are connected all branch fused lines. The release of any one branch line will release the control lever, whereupon the weight of the shutters will rotate the master bar, permitting the shutters to drop.

Generally speaking, the average architect, when designing a projection room, is all right until he comes to the matter of laying out the portholes in the front wall of the room. He then usually finds it necessary to fit the ports to meet the local conditions, such as avoiding beams, chandeliers and the like. This is obviously "placing the cart before the horse," to use a new and original phrase. Despite the fact that projectors are so built as to allow some leeway in adjustment for height and angle of tilt, the proper thing to do is to *first* lay out the projection room ports, and then make the local conditions

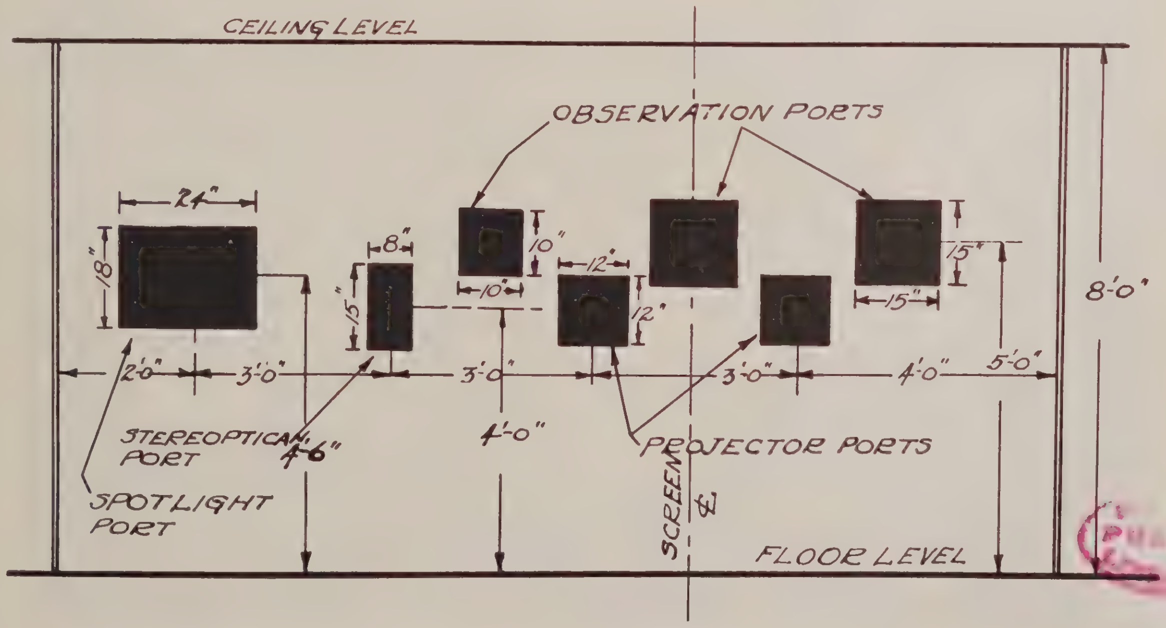


Fig. 3

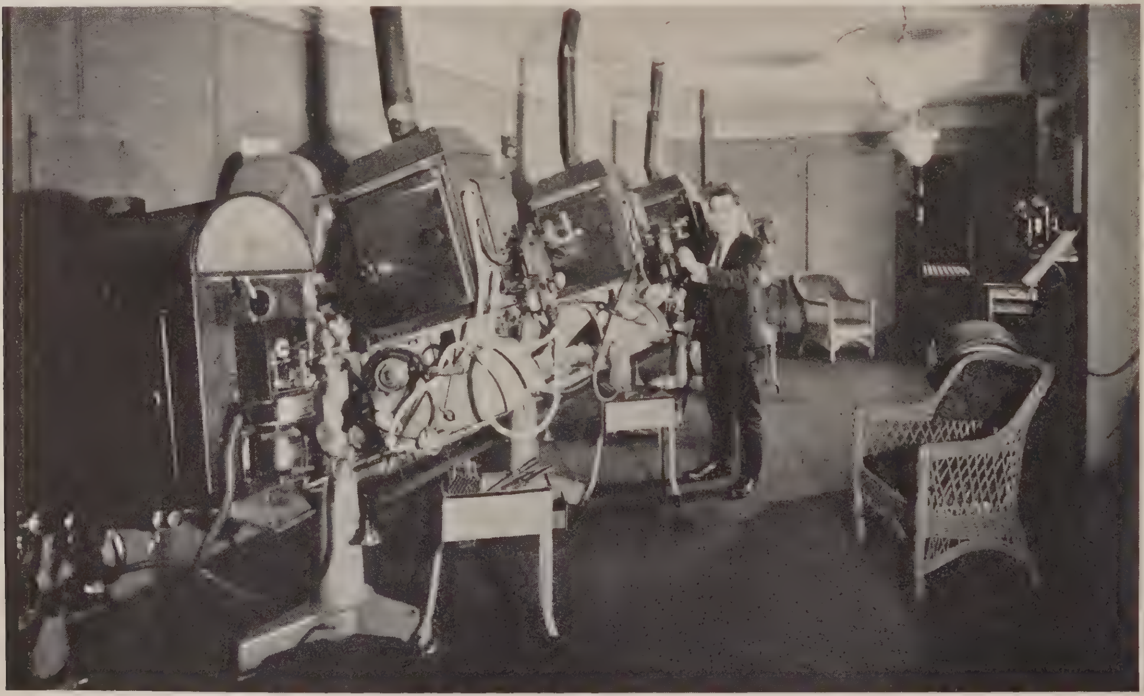
meet these requirements, whatever they prove to be.

Considerations of comfort and efficiency on the part of the projectionist demand that sufficient side and head room be allowed for in the projection room. With this in mind, we have at hand a key to the problem of locating the ports. All "spot," stereopticon lantern and projector ports should be spaced 3 feet apart. Where but one projector is used, 8 feet should be allowed for it. Making due allowance for clearance between front wall and projector, and projector and rear wall, a total width of 10 feet is recommended. As a guide in the location of projection room ports, the measurements in Fig. 3 are given.

Projection Room Summary

1. First choose a suitable location for the room, so that the projection distance preferably will come within the easy range of the common projection systems now on the market. The nearer the screen the better, keeping in mind that nothing less than a 4½-inch equivalent focal length projection lens should be used.
2. Place the room so that the center line of the screen will come midway between the two projectors.
3. Avoid heavy vertical projection angles, keeping in mind that the limit is 12° for results which are fully satisfactory.
4. *Be sure that no obstructions are in the path of the light beam* after the location is chosen.
5. The projection room should be absolutely fireproof. Safety drop shutters should fit snugly in their grooves and be cushioned to prevent banging.
6. A ventilating fan and exhaust pipe leading to the open air and having a minimum free opening of 18 inches should be provided to insure good service.
7. All doors to the projection room should be of the sliding gravity type, self-closing.
8. Toilet facilities should be provided for the convenience of the projectionist.
9. The artificial lighting should be adequate, and preferably of the totally indirect type.
10. The ceiling should be painted a light cream, the two side walls and rear wall a light gray, and the front wall (toward the screen) a dark gray.
11. A firm foundation for the entire room should be provided. This is highly important.
12. The floor should be varnished, or better still, painted a dark gray. This precaution is necessary, since the top surface of the floor (usually covered with a 1-inch coat of neat cement) will powder and injure the film and projector mechanism.
13. The projection room should be easy of access.
14. All wires of the electrical system should be enclosed in conduits.
15. Power service to the projectors should be placed in conduits beneath the floor and emerging directly under the lamp of each projector.
16. A strong bench and metal cabinets should be provided, either in the projection room or in a special room immediately adjacent to it.
17. House telephones and the necessary signal systems to the manager's office and orchestra pit should be provided.

These suggestions cover, briefly, the important points governing the design of a suitable projection room. If adhered to, we may confidently look forward to the early disappearance of those three species of projectionists now commonly encountered:—the "submarine" projectionist, the "camel-backed" projectionist, and the "rubber-necked" projectionist!



Projection Room, Capitol Theater, Detroit
C. Howard Crane, Architect

Some Structural Features of Theaters

By HENRY AHRENS, *Consulting Engineer, New York*

ROOFS: The framing of the theater's roof presents no unusual difficulties. It is, generally speaking, best to adopt a gambrel type of roof. This type allows the side walls to be of minimum height, and also enables the designer to take advantage of a 20-degree slope instead of a flat deck. Another advantage is that smaller trusses, about 10 feet deep and parallel to the axis of the auditorium, may be framed between the two main carrying trusses at right angles to the axis. This scheme obviates the necessity of haunching the lower chords over the dome, a very uneconomical method of framing. The rafters should be cantilevered over the parallel trusses. In the vicinity of New York, cinder concrete slabs are generally used. Gypsum long-span blocks are used quite often, and have the advantage of lightness, and in addition gypsum is a nonconductor of heat. There are several patented roof blocks which also possess in a high degree the great advantage of lightness.

Rigging Loft: Live loads range from 60 to 70 pounds per square foot, 60 for the smaller houses. It is unwise to use a light loading for the front of the gridiron, since most of the drops are hung in the front part. Three-inch channels make an excellent "slat," and should be spaced at not more than 6 or 7 inches on centers, 6-inch spacing over a span of 7 feet giving a total of 83 pounds per square foot. The cuts should be framed of channels 10 inches back to back and not farther than 2 feet from the proscenium opening at either side, and one cut preferably on the center line. The 3-inch channels should be placed with backs flush with the tops of the channels of the cuts.

Curtain Slots: These come either side of the proscenium opening, and should be of 18 x ⅜-inch plates, bolted to the brickwork at not exceeding 3 feet on centers with ¾-inch bolts built in; or if a steel proscenium column is used, a 6-inch channel should be placed at the end to form a smoke shield. The plate should extend from 1 foot above the stage to 1 foot above the rigging loft. The height of the rigging loft is generally twice the height of the proscenium opening, plus a few feet.

Projection Rooms: These are generally 9 or 10 feet in depth. If the booth is outside, that is outside the rear wall of the theater, provision should be made to insulate the walls and floor. These walls are in general built of terra cotta blocks with stucco finish on the outside. However, this makes a very cold room in the winter, to overcome which a 2-inch air space should be made between the outer block of 6-inch tile and the inner of 4-inch. In localities where severe weather is encountered, the floor should be insulated or made heavier than the 4-inch slab generally used. The length of the booth is dependent on the number of projection machines employed, two projectors, one stereo and two spots being the usual equipment. This gives a booth of from 14 to 16 feet in length, to which should be added 5 feet for a rewind room, and from 3 to 4 feet for a toilet room with a wash basin. This gives a total length of 24 feet or so, plus provision for a stairway or ladder shaft from the booth to the theater, at the bottom of which there must be a self-closing fire door to secure adequate safety.

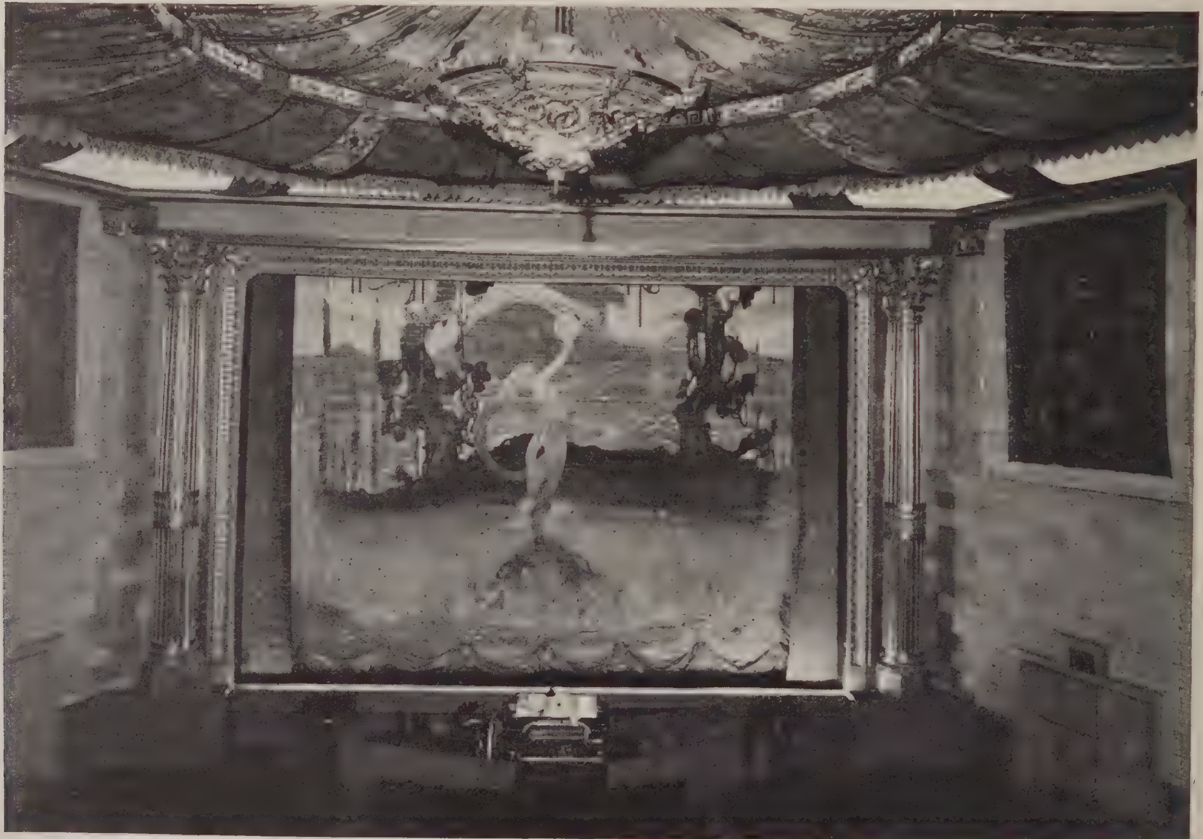
Organ Lofts: These are generally placed adjacent to the proscenium wall, and have a minimum depth of about 8 feet. More depth should be given if possible. The ceiling should be 10 feet above the finished floor, built of metal, lathed and plastered. An opening of ample allowance, not less than 30 square feet, should be made, so as not to stifle or choke the music in its progress into the auditorium.

Balconies: The framing of the balcony is the crux of the entire steel design. There are several methods of framing in general use. One method is to carry the crossover truss or the first truss back of the balcony fascia straight across to the columns of piers in the side walls. The second method is to make the crossover truss about one-half or two-thirds the distance across, then to carry the ends over a short carrying truss, by means of a cantilever, to the fulcrum truss. This method gives a much stiffer balcony than the first method, as the crossover truss is rarely over 5 or 6 feet in depth. The radial system of framing has not been used for some time, since it is uneconomical and also complicated in framing and detailing.

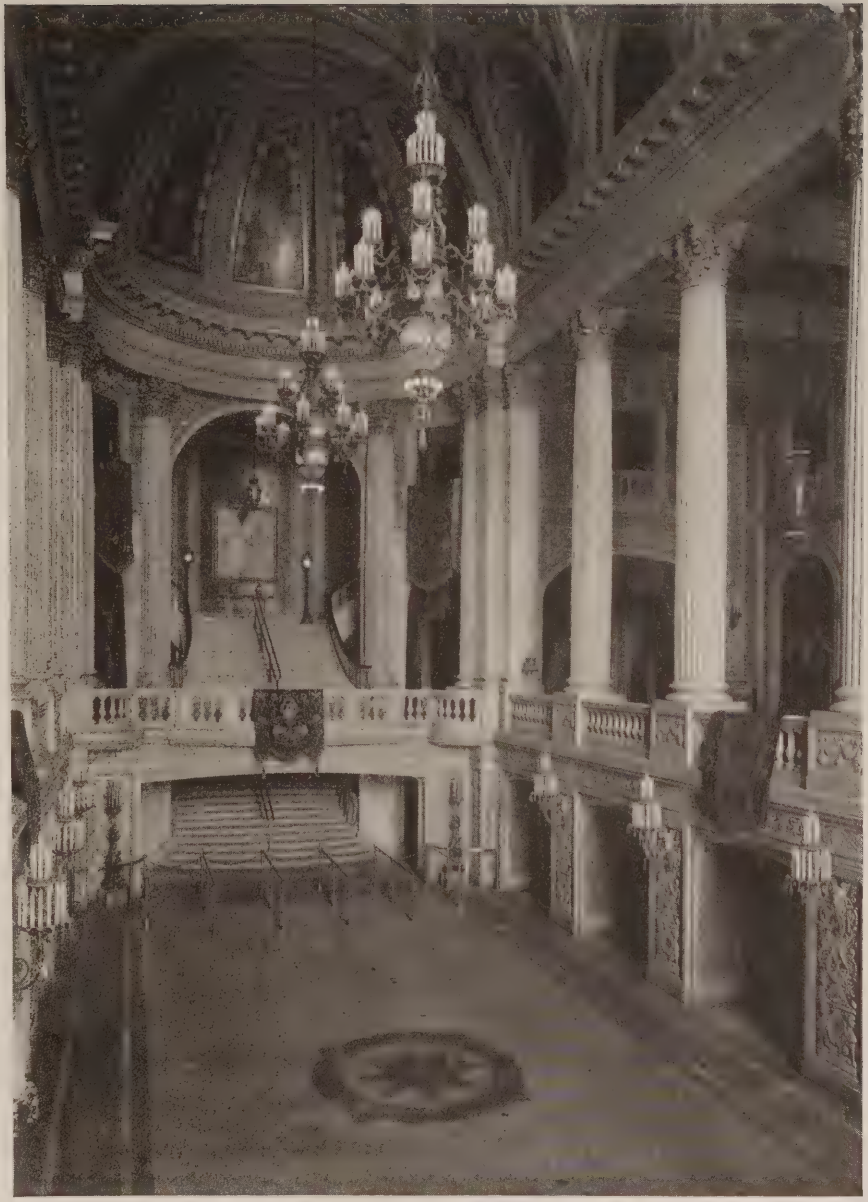
Construction: The stringers are all placed parallel to the center line, and are spaced 8 feet apart for cinder concrete construction, and up to 10 or 12 feet when stone concrete is used. Use of the cinder concrete slab is very economical, and should be employed where clean, steam boiler anthracite cinders are obtainable. The risers, usually about 12 or 14 inches in height, are made 2 inches thick; the slabs are 4 inches in thickness, 3 inches of cinder concrete and 1 inch of cement finish, applied before the 3-inch slab has set, giving a monolithic finish. This slab is reinforced with triangular wire mesh, carried over haunches resting on the steel stringers and requiring no steppings or angles except at the crossovers. Such a floor will weigh, with a 12-inch riser, 165 pounds per square foot. For stone concrete it is advisable to reverse the methods for cinder concrete and make the riser the carrying beam, figuring the treads as a half-tee beam. This will give a span of from 11 to 12 feet, with the riser 4 inches in thickness at the center between the stringers to about 5 inches at the supports. Use of square reinforcing rods at the bottom of the riser at the midspan is best. It is best to space the stringers so that no stirrups will be necessary. The position of the fulcrum truss is generally determined by the architectural treatment of the mezzanine. As great a depth as is possible should be sought after, as this truss is the main carrier of the balcony. If the balcony has the vomitories at the sides, carefully scan the clearance of the hip member of the truss. If the vomitories are placed near the center, complicated truss forming will be caused. However, a little shifting of the panel points of the truss will generally overcome this, and give sufficient clearance for the vomitories. If the width of the house is over 60 feet, it will generally be found necessary to dip the sides of the balcony in order to improve the sight lines. A dip of 12 inches is usually made in an 80-foot balcony, and about 14 or 15 inches for a balcony of 100 feet. The sight lines in general are determined by a height of from 18 to 20 feet on the curtain line above the stage, and 5 feet or so below the stage for the slope of the balcony. Ten feet is rather low for a ceiling at the standee rail, and it should preferably be greater to be satisfactory.

The proscenium wall above the opening is carried sometimes by a truss or girder and quite often by a reinforced concrete girder. One advantage of the reinforced concrete girder is that the form can be built and the girder cast in place before a truss could be shipped. In the vicinity of New York, where cinder concrete is obtainable, a steel truss cast with about 12 inches of cinder concrete makes an ideal form of construction, combining lightness and high fire-retarding qualities. The stage portion of the theater is always fire-sealed against the auditorium by means of a 12-inch brick or concrete wall with only one opening from stage to orchestra floor, this opening to have a self-closing fireproof door on each side. The stage is also fire-sealed against the dressing room section of the building by the same means, and the dressing rooms are similarly sealed against the auditorium. The stage floor, or that portion of it which is back of the proscenium opening and for about 8 feet on either side of it, is always built of wood. A floor of at least 1¾-inch thickness, carried on joists and supported by two rows of posts with provisions for one or more lines of traps, is the method of framing the stage floor.

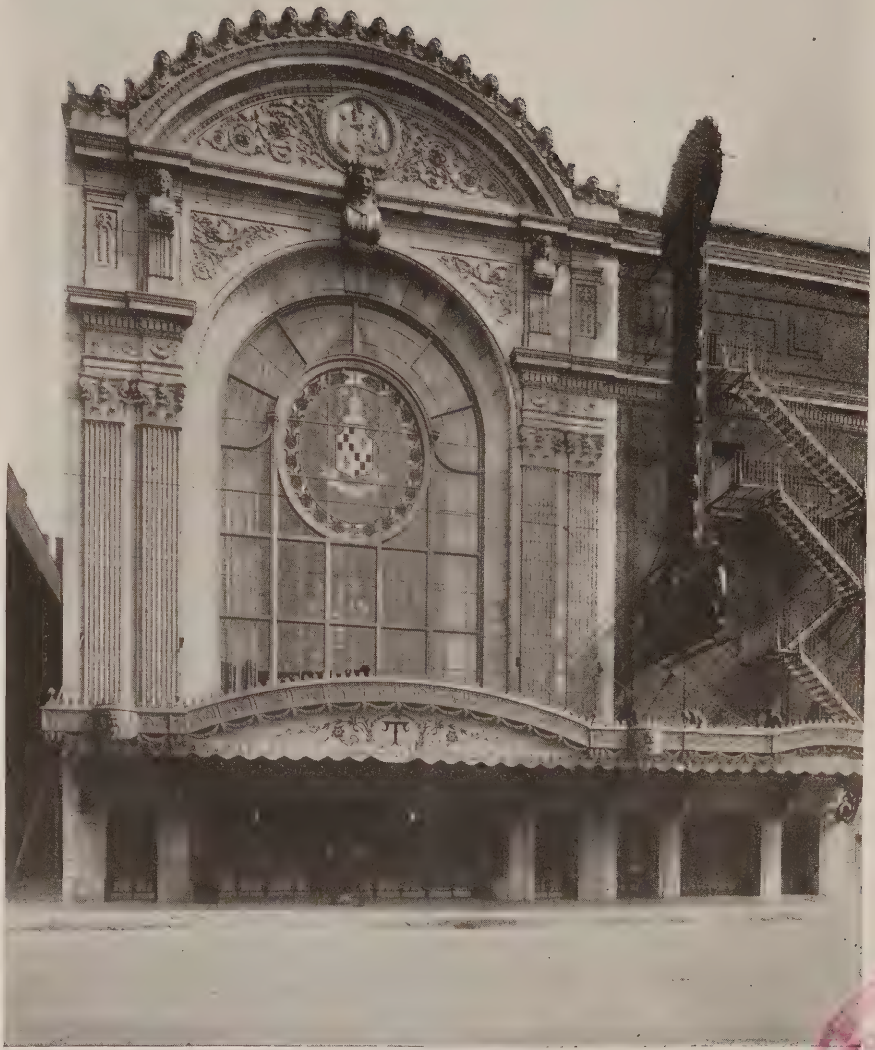
Regarding live loads, most of the building codes require a loading of 100 pounds per square foot, and it is the loading generally used in the absence of a building code. Some codes allow a lighter live load when fixed seats are installed and an increased loading for the aisles. It is best, however, to use the 100-pound loading for the balcony and mezzanine. As the orchestra floor is generally laid directly on soil, care should be taken that backfilling be well tamped and light reinforcing placed in the concrete finish to prevent the floor's sagging due to shrinkage of the fill. The finish, if concrete is used, should be at least 2 inches in thickness.



Detail, Kinema Theater, Fresno, Cal.
G. Albert Lansburgh, Architect



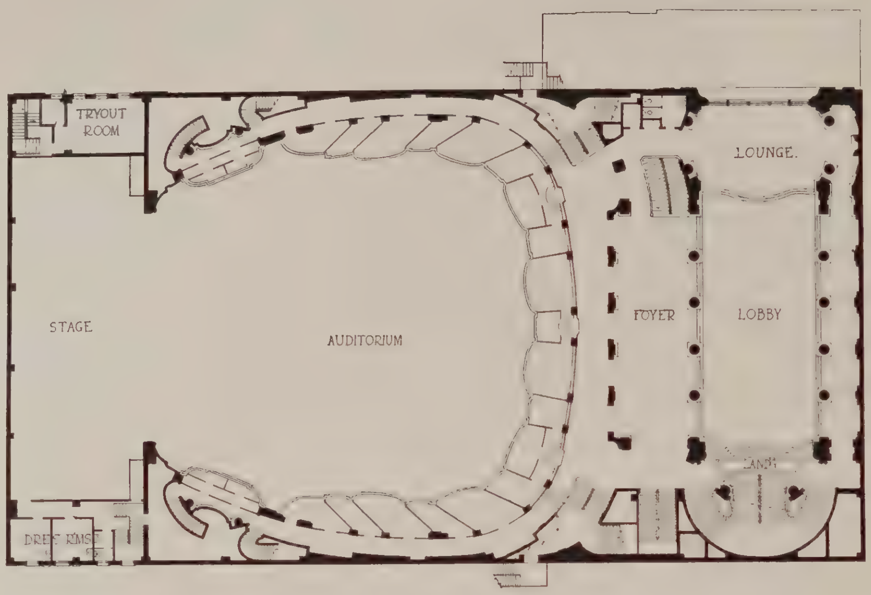
THE MAIN LOBBY



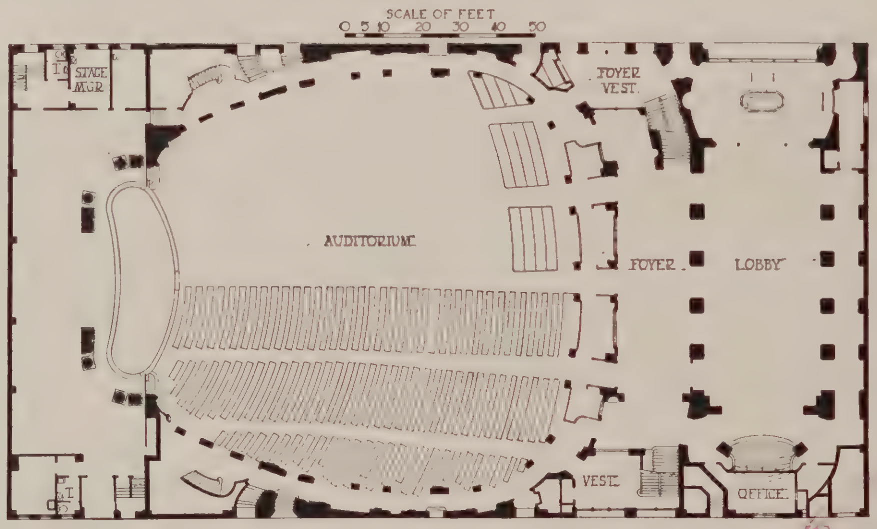
(Plans on Back)

ENTRANCE FRONT

THE TIVOLI THEATER, CHICAGO
C. W. & GEORGE L. RAPP, ARCHITECTS



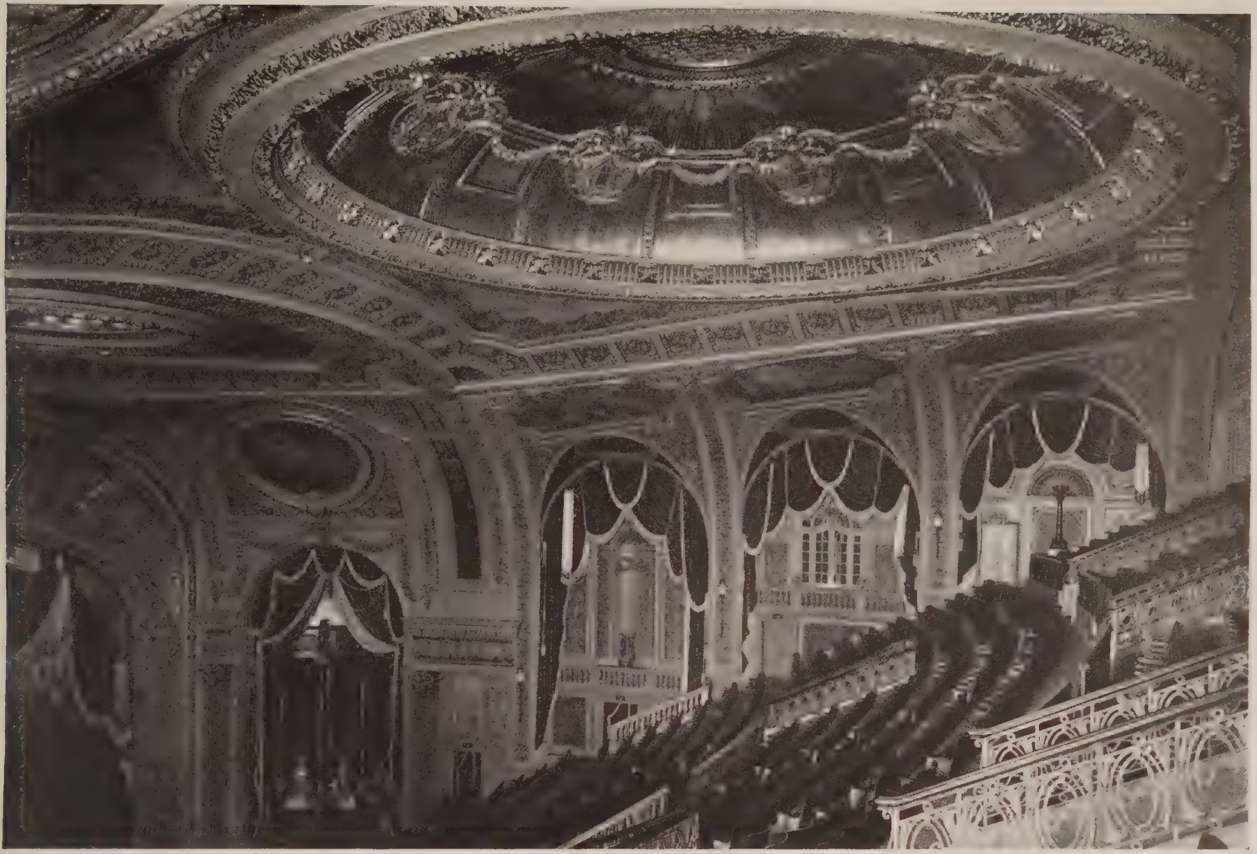
MEZZANINE FLOOR



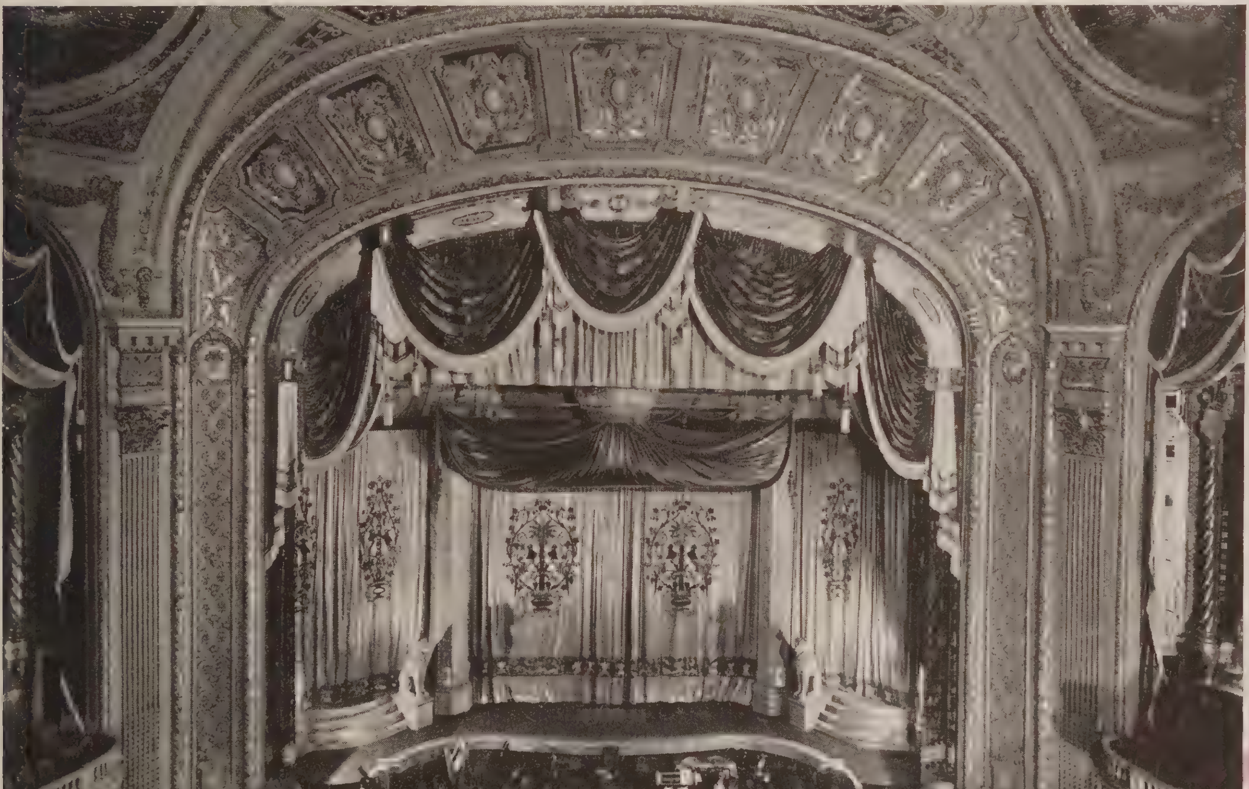
ENTRANCE FLOOR

PLANS, THE TIVOLI THEATER, CHICAGO

C. W. & GEORGE L. RAPP, ARCHITECTS



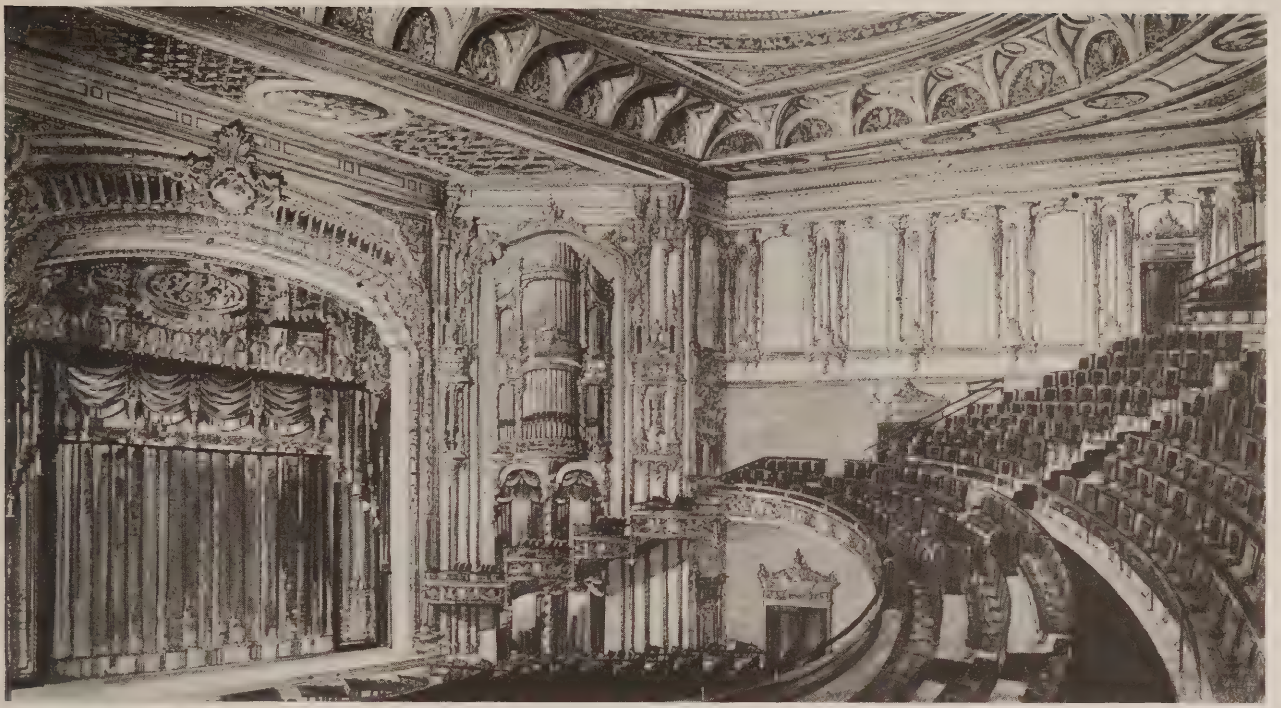
CEILING AND WALL TREATMENT FROM THE BALCONY



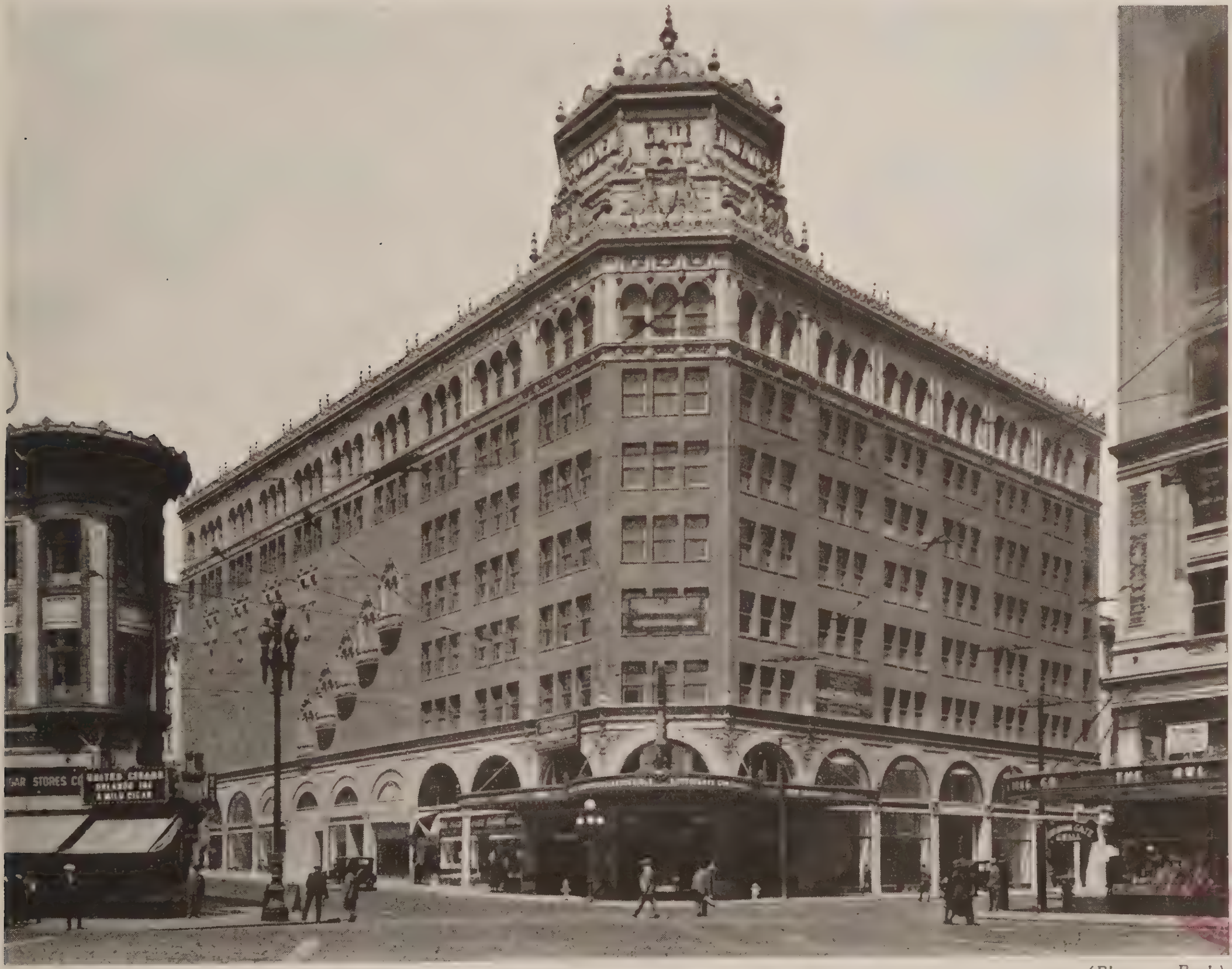
PROSCENIUM ARCH

THE TIVOLI THEATER, CHICAGO

C. W. & GEORGE L. RAPP, ARCHITECTS



FROM A DETAIL DRAWING OF THE AUDITORIUM

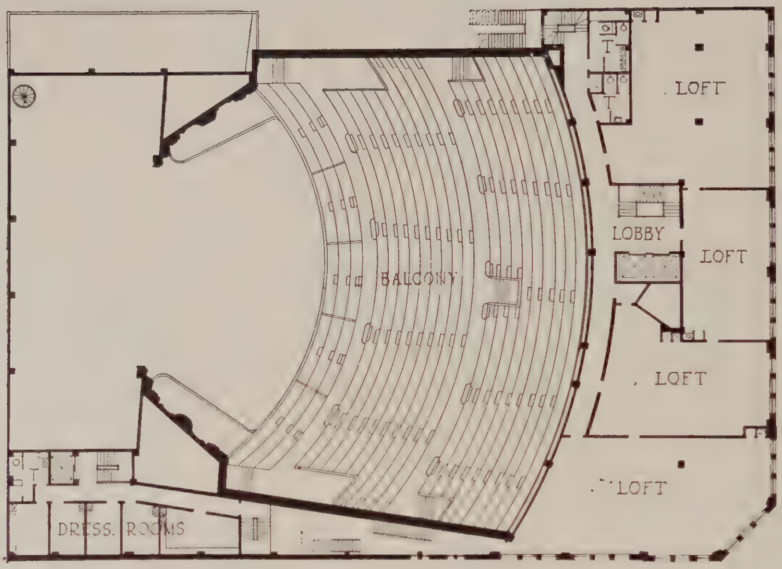


FRONT ELEVATION

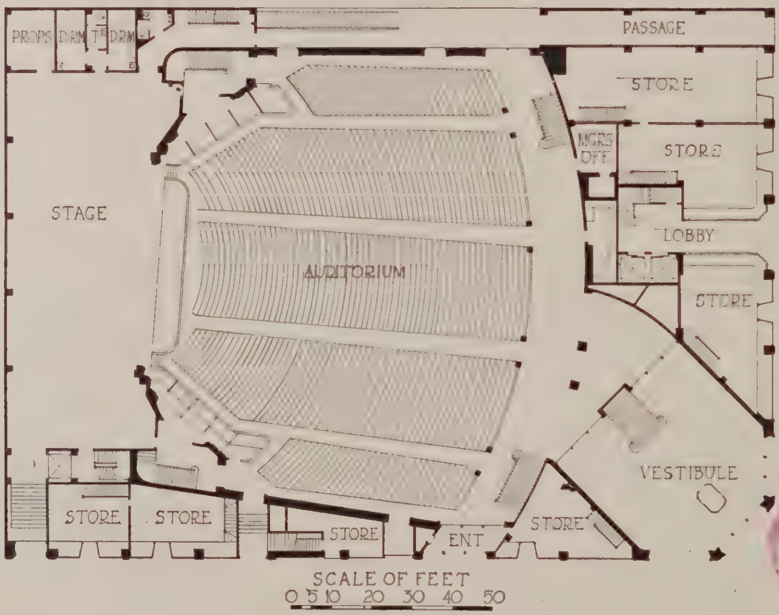
(Plans on Back)

THE GOLDEN GATE THEATER, SAN FRANCISCO

G. ALBERT LANSBURGH, ARCHITECT



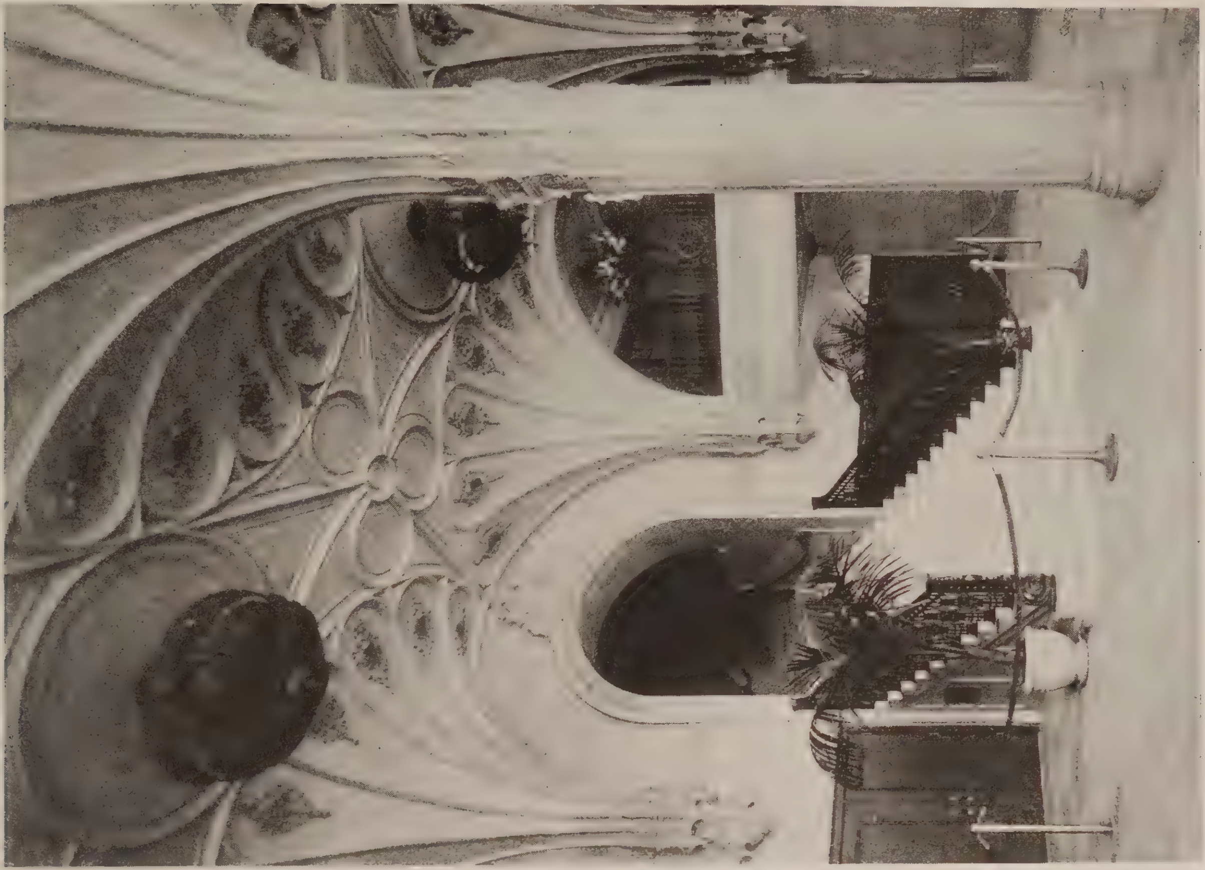
BALCONY FLOOR



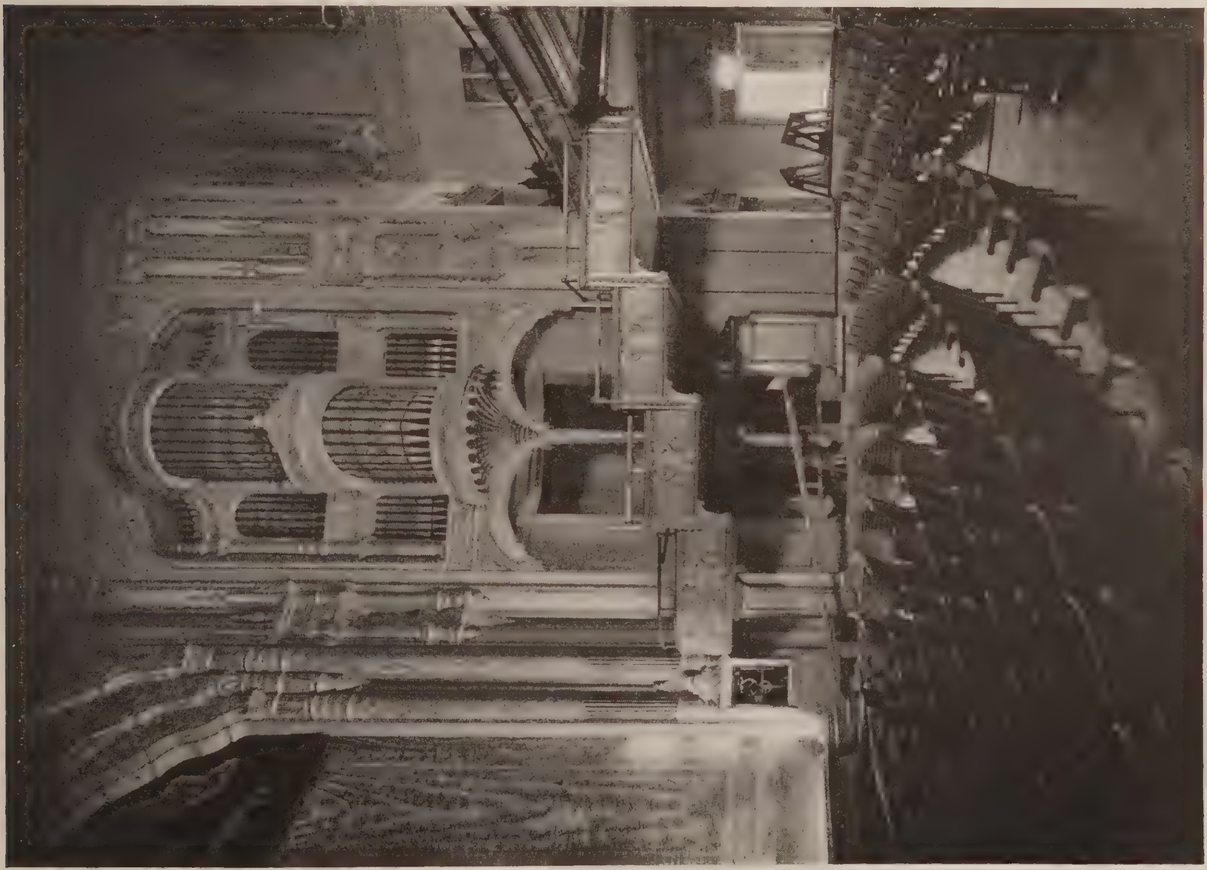
ENTRANCE FLOOR

PLANS, THE GOLDEN GATE THEATER, SAN FRANCISCO

G. ALBERT LANSBURGH, ARCHITECT



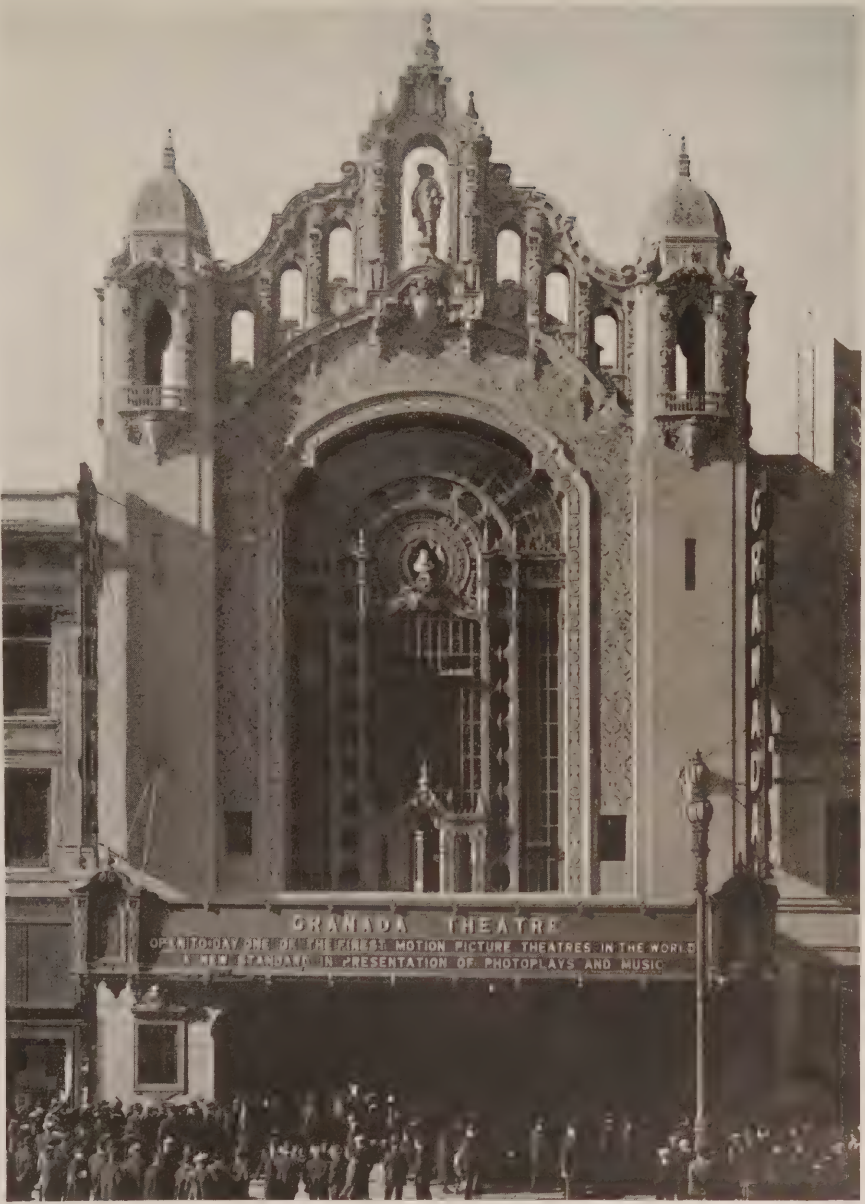
THE ENTRANCE LOBBY



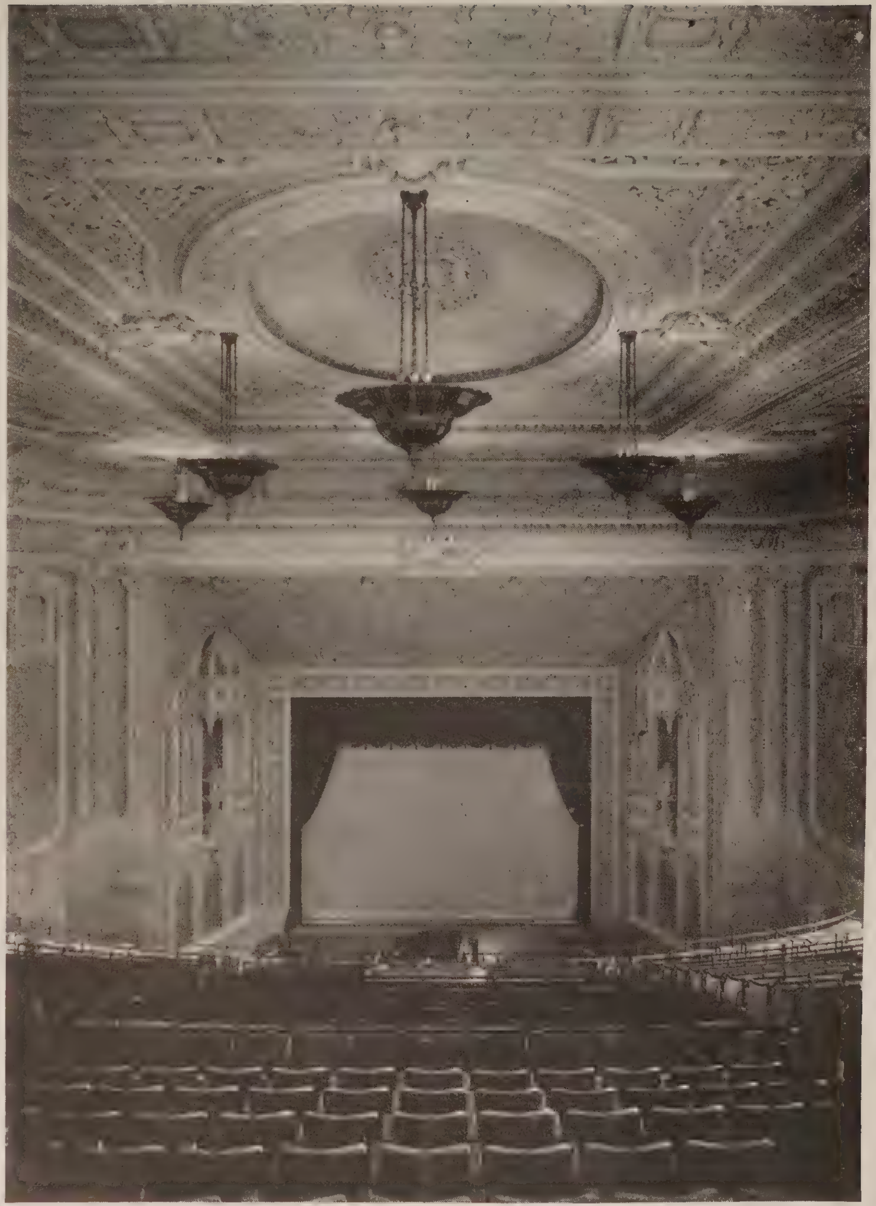
ORGAN AND PROSCENIUM

THE GOLDEN GATE THEATER, SAN FRANCISCO

G. ALBERT LANSBURGH, ARCHITECT


GRANADA
GRANADA THEATRE
OPEN TO-DAY ONE OF THE FINEST MOTION PICTURE THEATRES IN THE WORLD
A NEW STANDARD IN PRESENTATION OF PHOTOPLAYS AND MUSIC

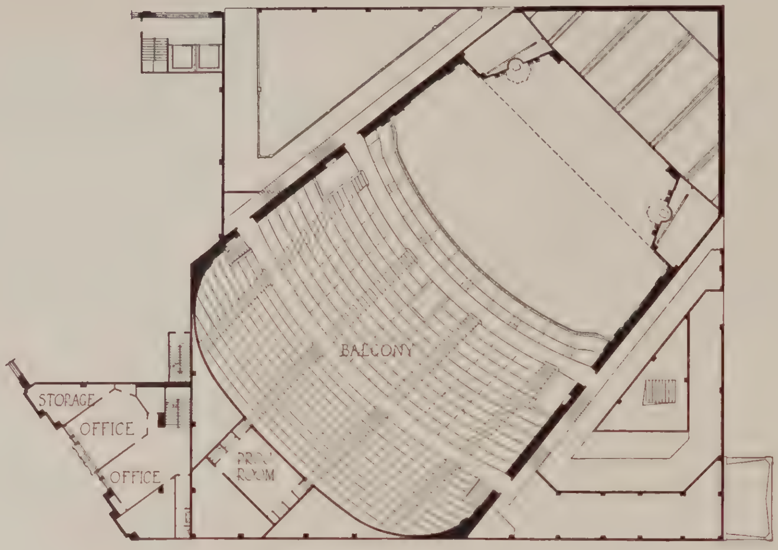
ENTRANCE FACADE



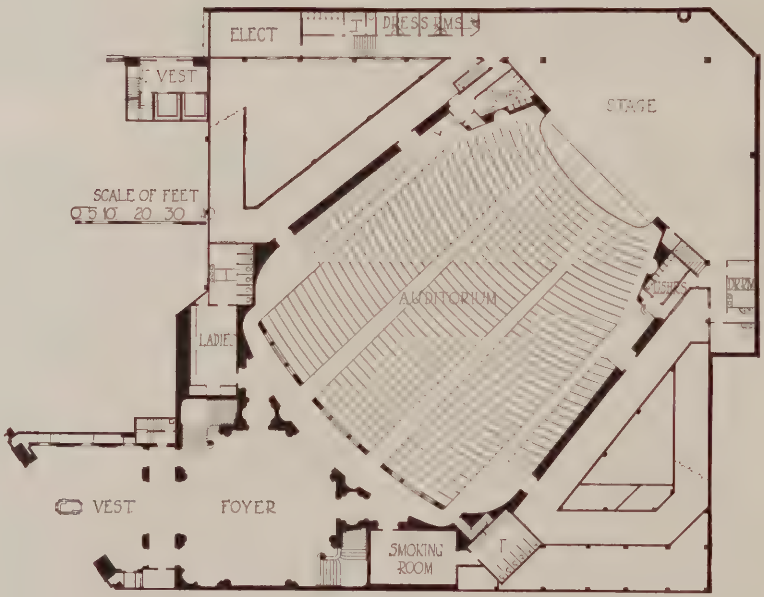
STAGE FROM THE BALCONY

(Plans on Back)

GRANADA THEATER, SAN FRANCISCO
ALFRED HENRY JACOBS, ARCHITECT



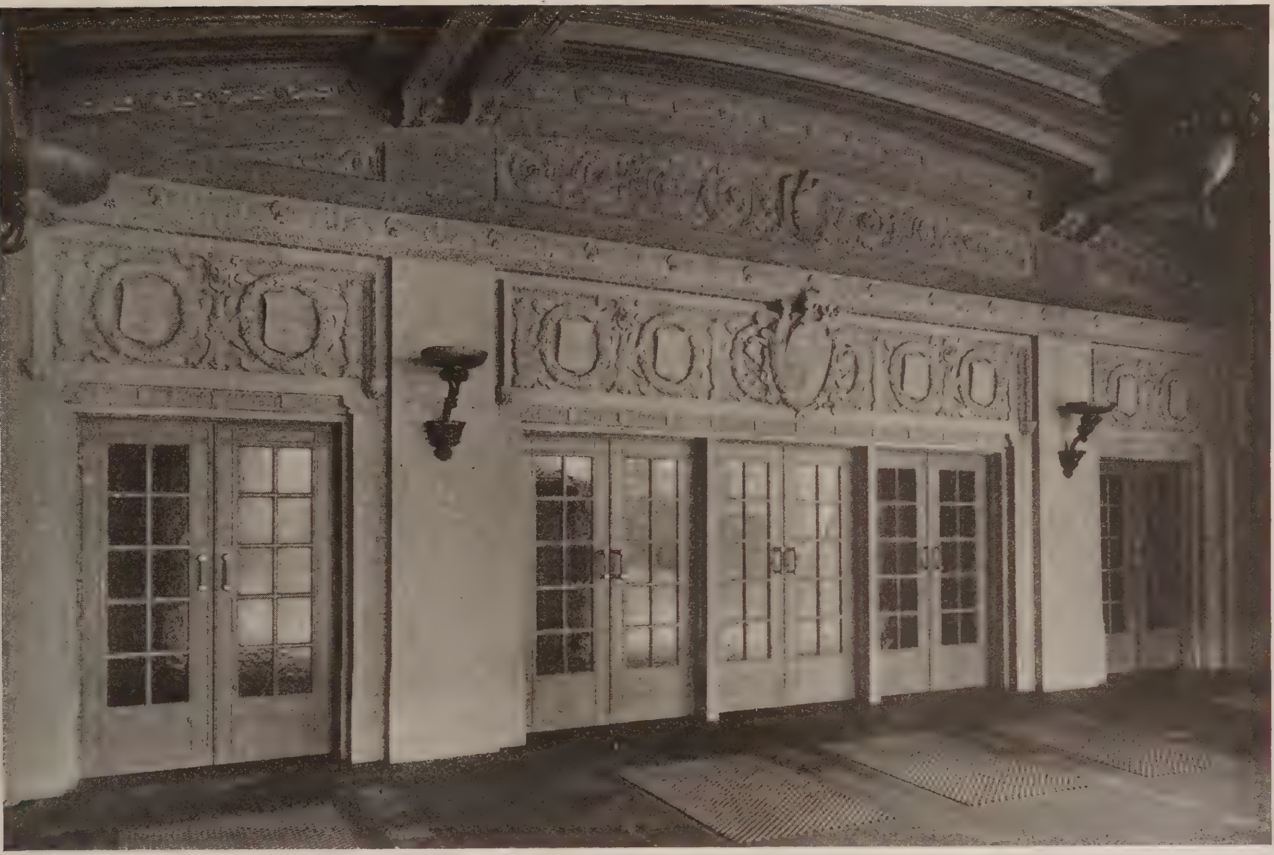
BALCONY FLOOR



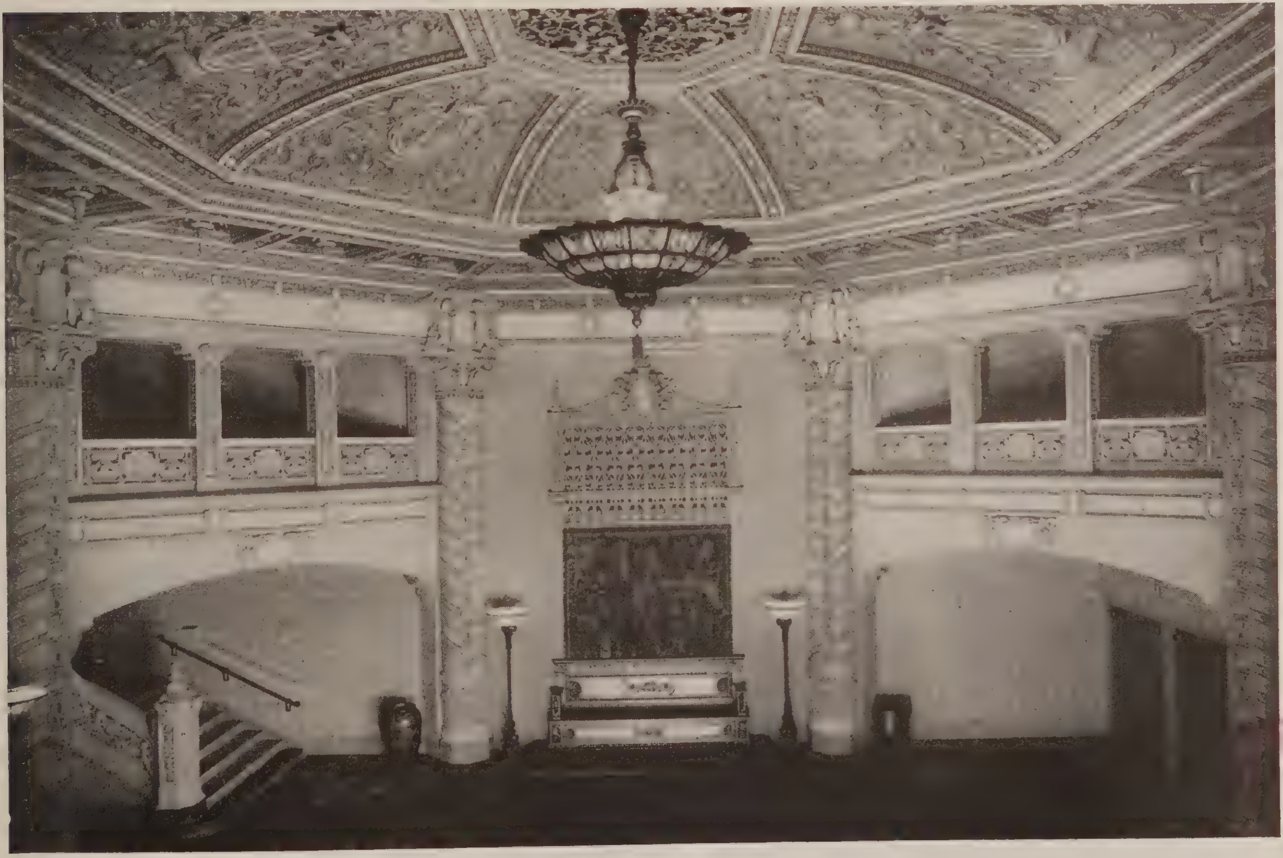
ENTRANCE FLOOR

PLANS, THE GRANADA THEATER, SAN FRANCISCO

ALFRED HENRY JACOBS, ARCHITECT

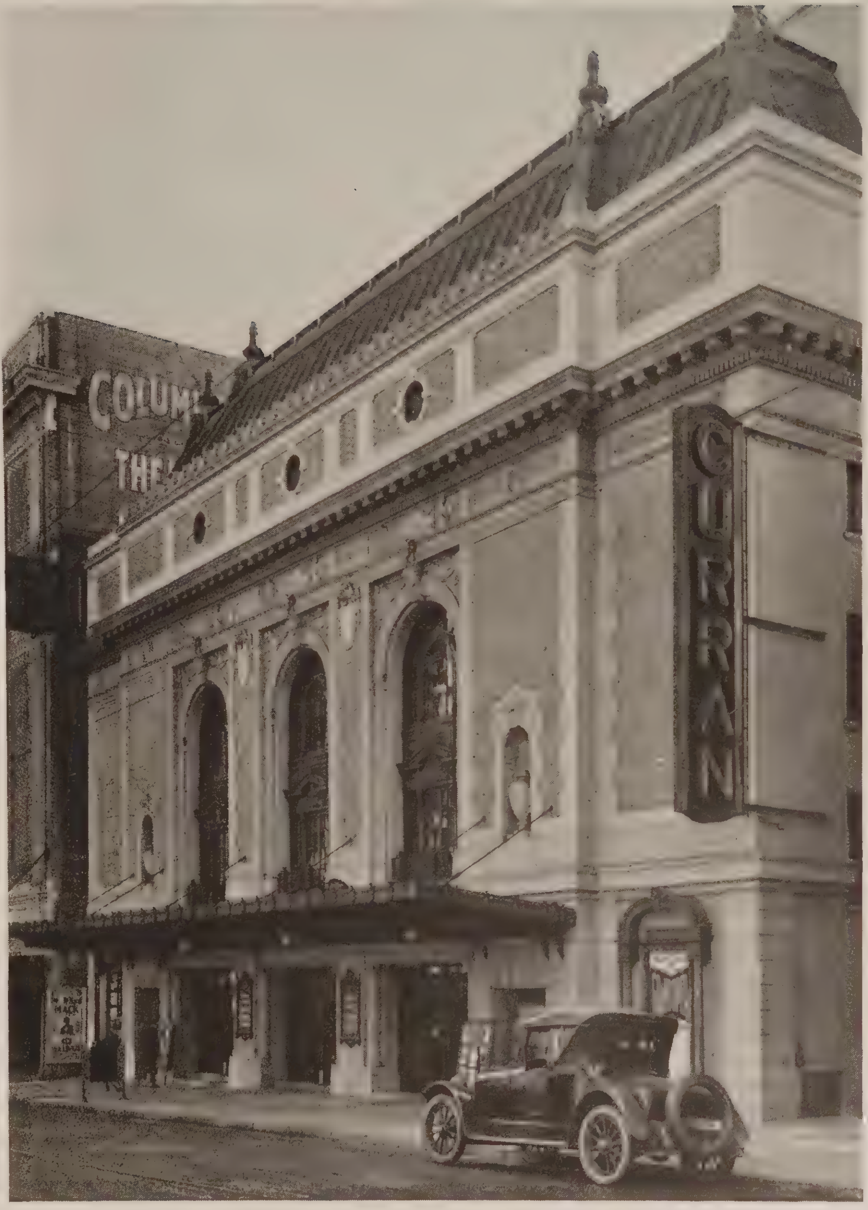


ENTRANCE LOBBY



MAIN FOYER

GRANADA THEATER, SAN FRANCISCO
ALFRED HENRY JACOBS, ARCHITECT



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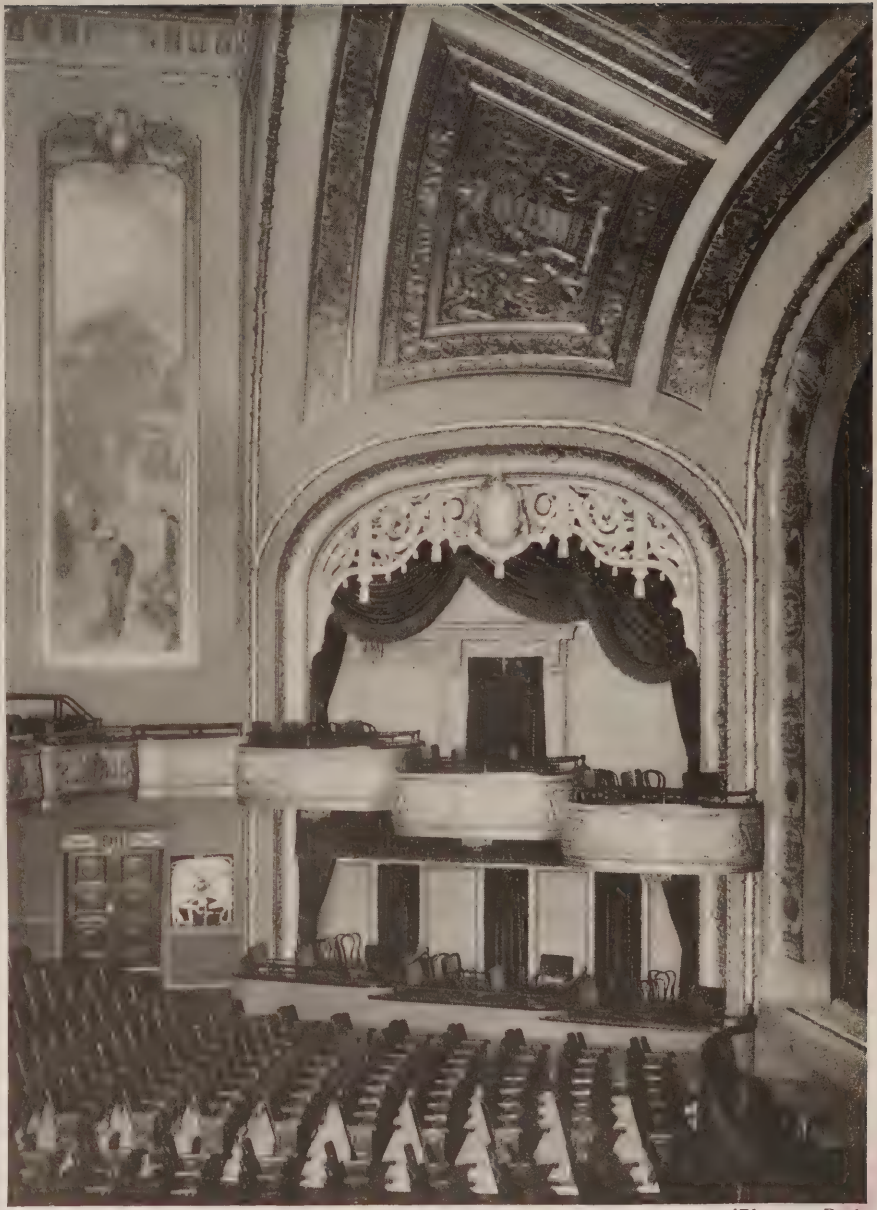

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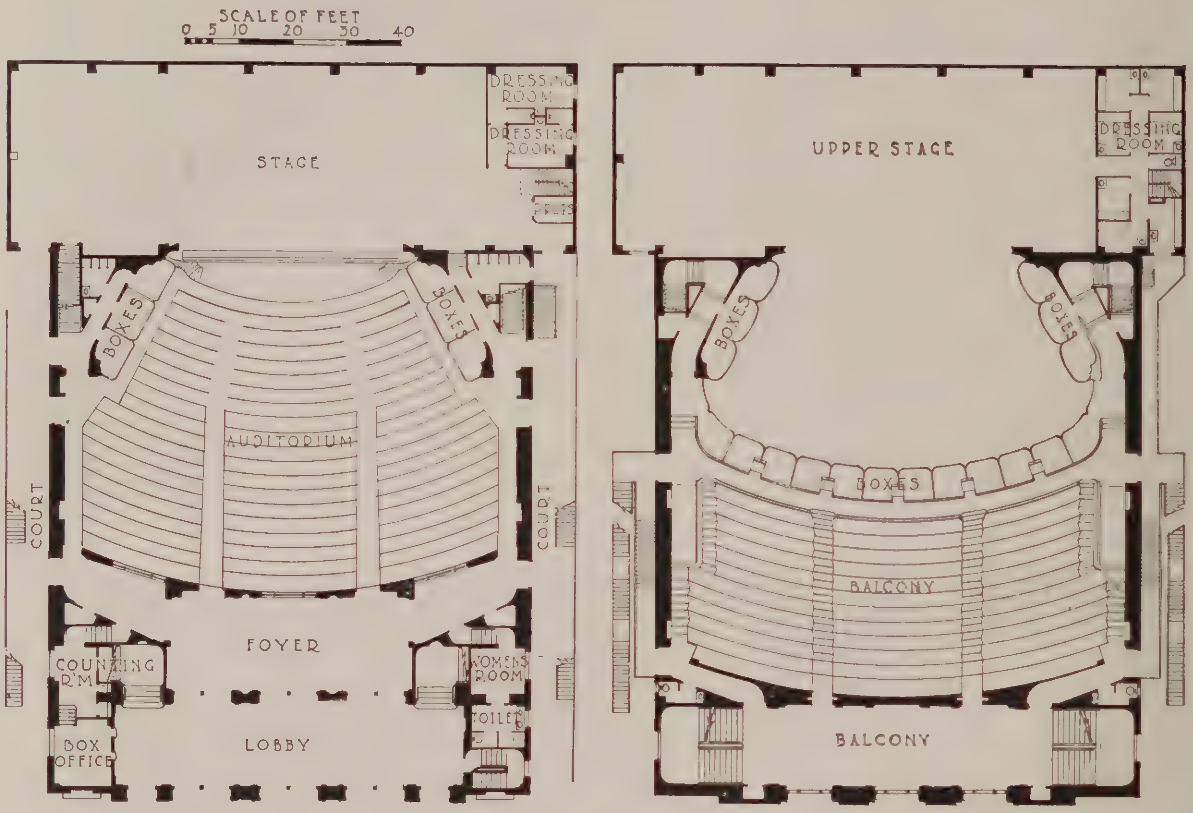
DETAIL IN AUDITORIUM

THE CURRAN THEATER, SAN FRANCISCO
ALFRED HENRY JACOBS, ARCHITECT

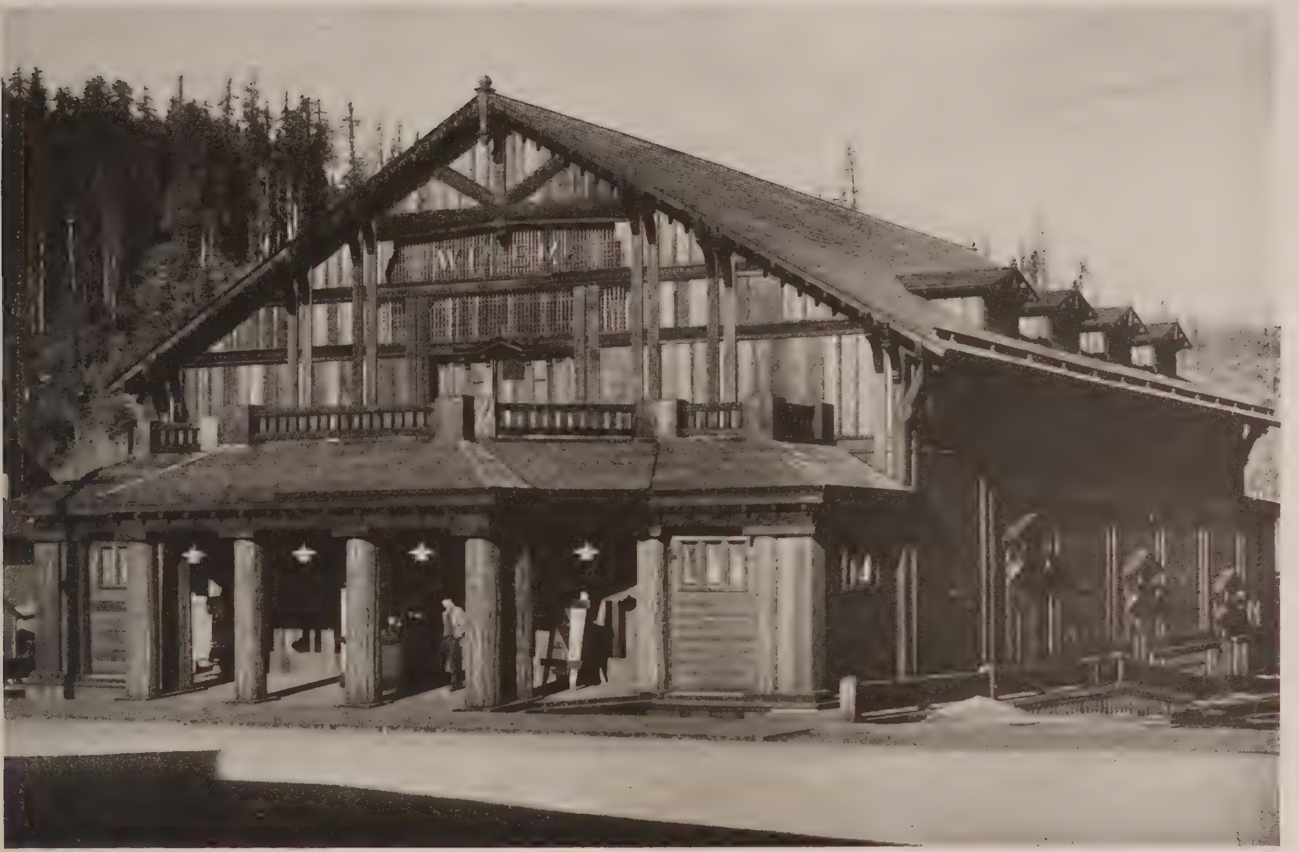


ENTRANCE FLOOR

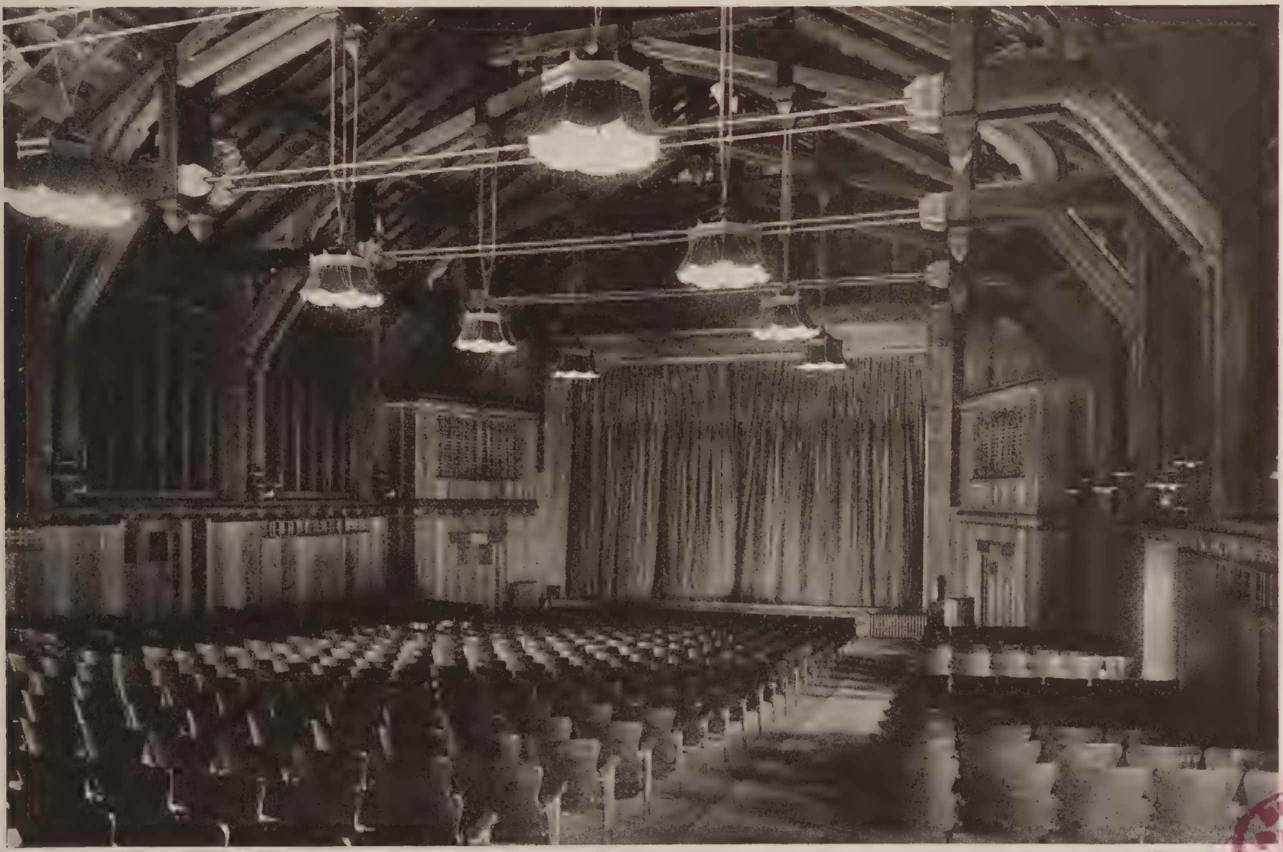
MEZZANINE FLOOR

PLANS, THE CURRAN THEATER, SAN FRANCISCO

ALFRED HENRY JACOBS, ARCHITECT



TYROLEAN INFLUENCE SEEN IN THE EXTERIOR DESIGN



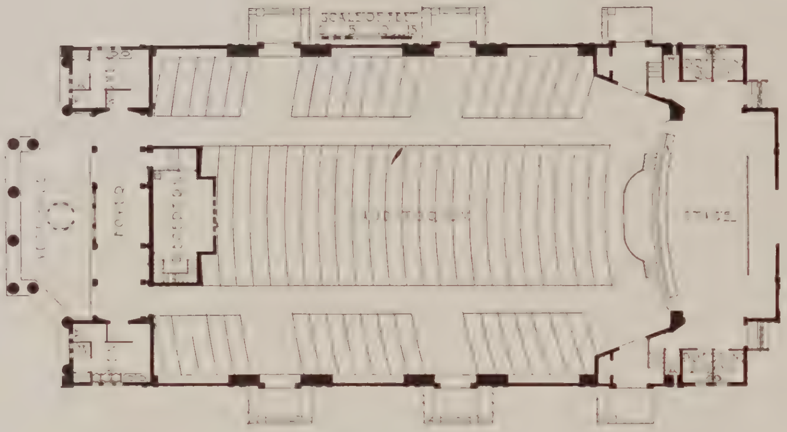
(Plans on Back)

BOSTON PUBLIC LIBRARY

CHURCH-LIKE TREATMENT SHOWN IN THE AUDITORIUM

THE WINEMA THEATER, SCOTIA, CAL.

ALFRED HENRY JACOBS, ARCHITECT



MAIN FLOOR

PLAN, THE WINEMA THEATER, SCOTIA, CAL.
ALFRED HENRY JACOBS, ARCHITECT

BOSTON PUBLIC LIBRARY

Stage Layout and Equipment

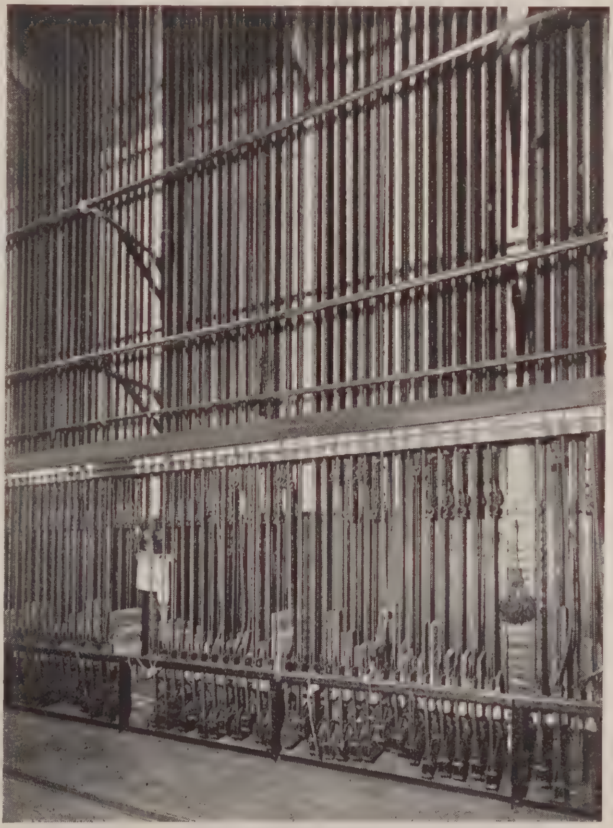
By EDWARD H. KEARNEY, C.E., *New York*

IT is obvious that the size of the stage and amount of stage equipment that are needed for a motion picture theater depend upon the policy of the house. In the theater that shows only pictures, no elaborate stage rigging is needed, as the screen could be permanently placed on the back wall and only a shallow stage is necessary. A height of about 3 or 4 feet above the proscenium opening is all that is required for a stage house. In this type of building a shadow box could be built permanently around the picture screen, and the only rigging needed would be a draw-curtain track, which may be tied off dead from eyebolts in the ceiling; the valances also could be tied off dead. Thus the stage is of the simplest.

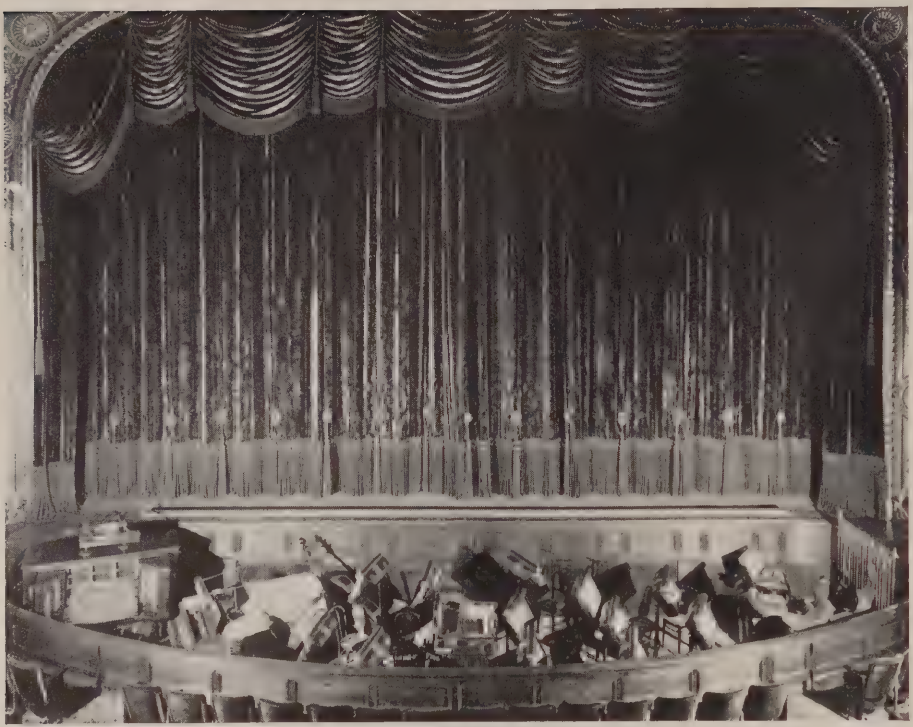
If the theater is one that features an organ, this type usually has for showing pictures a permanent architectural setting built on the stage about 15 feet deep. The screen should be set about 4 feet from the rear wall, so as to allow a passageway back of the stage. The stage within the proscenium arch may be stepped down, forming an orchestra pit. The organ console should be built on a console elevator, or movable platform. In this type of house a draw-curtain with a track is needed, directly in front of the screen since it is frequently used.

In the theater which features a concert orchestra, a most novel effect is gained by placing the orchestra on an orchestra pit elevator. The platform of the elevator is the entire floor of the orchestra, which may be lowered to the basement level or brought up to the stage level. The orchestra is featured and made part of the program in a novel manner. The musicians assemble in their places with the platform at the low level, where there is a convenient entrance; then, while they are playing, the platform is raised to its position in the auditorium, in full view of the audience. When the orchestra is to play as an accompaniment to the pictures, it is brought to an intermediate position below the sight lines of the audience. When the musicians are leaving the pit, the platform is lowered again to the basement level, so that their leaving causes no annoyance to the patrons of the theater, nor does it distract their attention from the screen. The organ console can be placed on a separate platform and operated in the same manner as the orchestra arrangement just mentioned. The placing of the console on a separate ledge permits the featuring of the organist in a solo number. There are three positions for orchestra lifts—the bottom of the pit; screen playing level; and the overture level, which is usually the level of the stage. Another feature of the orchestra platform lift is that it may be used at the level last mentioned to enlarge the stage area or for symphony productions. The operation of the orchestra or the console lifts is electrical and automatic. The leader, by pushing the proper button, can bring the lift to any of the three levels desired, at which the lift will automatically stop and there remain rigidly fixed.

In the theater where the policy combines vaudeville and pictures, or pictures and ballet, a full sized stage is required. Theaters that are equipped with orchestra lift platforms are also usually built with good sized stages. Such stages should not be less than 30 feet in depth and no less than 30 feet in width, and have a height of approximately 60 feet to the gridiron. The height of the gridiron above the stage depends on the height of the proscenium opening. It should be at least double the height of the opening, plus 5 feet. The stage requirements are an asbestos curtain and rigging; an act curtain and rigging; three "oleos," or rapidly working curtains; a picture sheet, and about 45 sets of lines for drops. The asbestos curtain must have a rigging of its own, consisting of a 16-inch sheave and a 20-inch hair block, hung on wire cables counterbalanced so that the curtain will descend by gravity under its own weight, the counterweight to run on T-bar guides. Headblocks and sheaves should be placed on brackets, either built into the



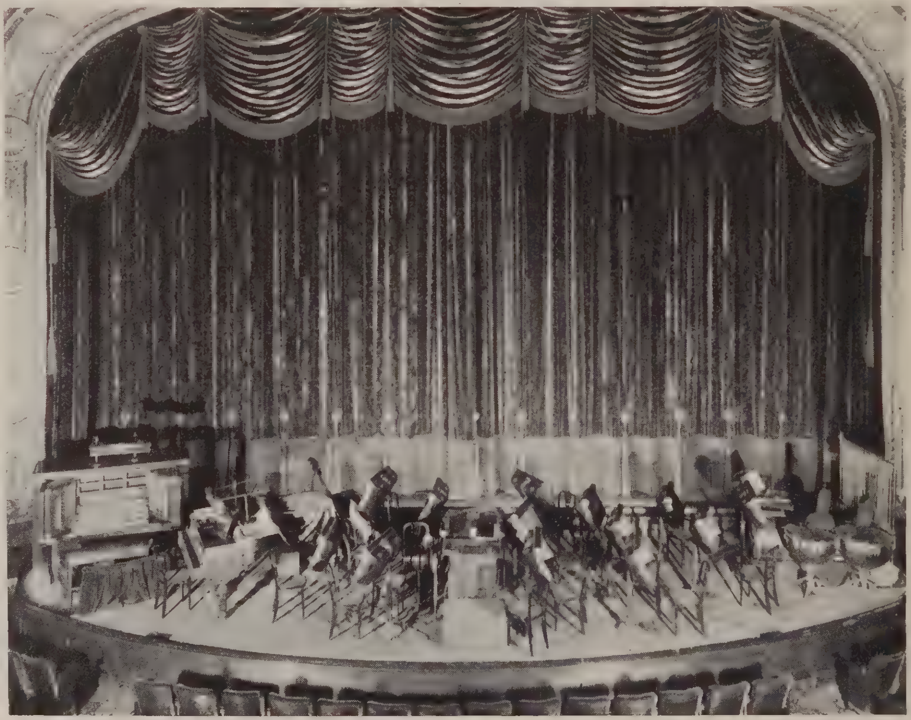
Typical Installation of a Counterweight System



Orchestra Platform in Lowered Position

proscenium wall or securely bolted into it. Rigging for the act curtain is of the same type as is used for the asbestos curtain, but it may be evenly counterbalanced. These details are of considerable importance.

In inexpensive theaters counterweight systems of improved type are being installed in place of rope sets with their fly galleries and old style sandbags. In the counterweight system all weights are carried on steel cables instead of on manila ropes, counterweights are run in T-track guides on the side walls of the theaters, and steel cables are run from the tops of the counterweights over the head-blocks and through floor sheaves to pipe battens, which are accurately level with the stage floors, and made to accommodate drops which are the full sizes of the openings. The entire system is handled from the stage door, where there are safety locks so that the scenery can be held in any desired position, and also an illuminated strip which lights the locking rail and carries the numbers of the sets. The locking rail is also equipped with a strip for card indexing each set of lines, so that anyone can tell at a glance just what is hanging on each set.



Orchestra Platform in Raised Position

Houses equipped with counterweight systems need no special equipment for border lights or act curtain. They can be hung directly on the system and counterbalanced. This system permits the making of changes in a remarkably short time and with a great saving in labor. Besides the asbestos and act curtains, there should be a grand drapery, a working drapery, "tormentors" and "tormentor flippers."

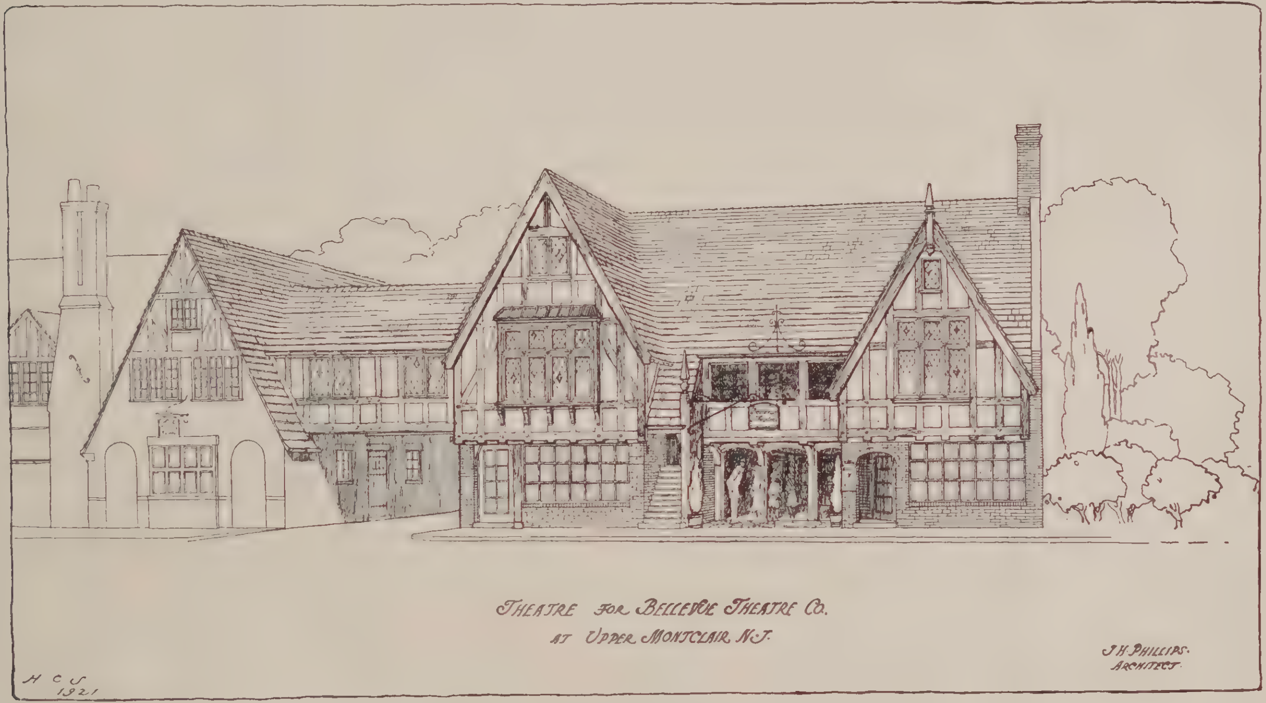
The tormentors and flippers should be from 18 to 20 feet high; the tormentors 8 feet wide and the flippers about 4 feet, 6 inches wide. The distance from the proscenium opening to the side walls of the house should be about 15 feet. The rigging for scenery should be arranged to enable handling of it on the same side of the stage as the switchboard. Electrical stage pockets should be provided on both sides of stage, the first being placed about 6 feet upstage from the curtain line, then spaced 7 feet apart for the depth of stage.

The Small Motion Picture Theater

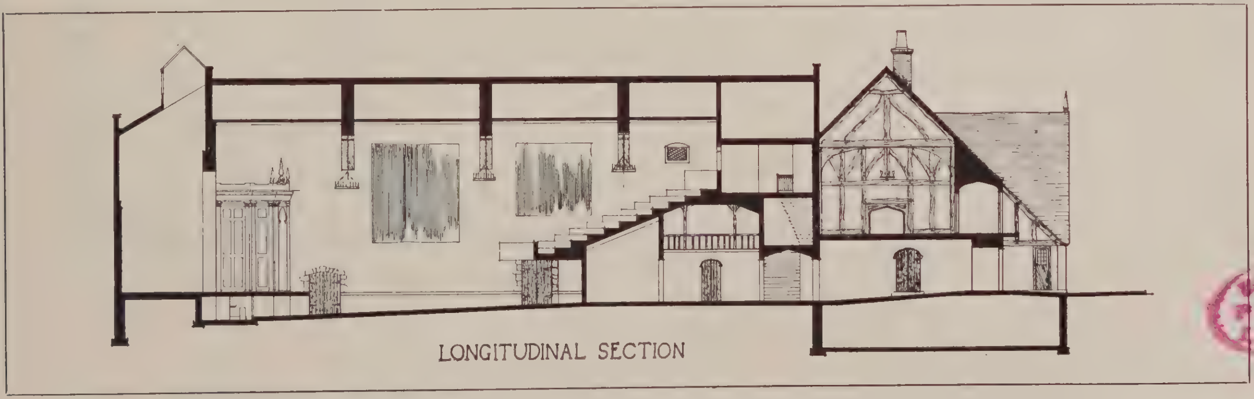
By J. H. PHILLIPS, *Architect, New York*

OUR modern domestic architecture has made a steady and wonderful advance in recent years. Not only have housing conditions improved through the careful study of the leading architects, who have designed artistic houses and attractive apartment structures, but also our public buildings, particularly our public schools, have become worthy examples of architecture. It is most unfortunate, therefore, considering the great number of theaters and motion picture houses that have been built in recent years, that architects have not given more attention and shown more creative ability in the designing of the small rural and suburban "movie" theater. Here lies a great opportunity to improve public taste by designing more attractive buildings, which will attract and delight the public.

An attractive, comfortable motion picture theater in a suburban town is a source of pride to the community, just as much as are artistic homes and quaint cottages. In designing the exterior of a small theater, there are unlimited opportunities for carrying out fantastic ideas and interesting effects. For instance, the suggestion of a picturesque old English tavern, or a refined American Colonial facade with porticoed entrance, white trim, red brick and old fashioned shop fronts, holds alluring possibilities. In our country towns and villages we find but few instances where theaters have been designed by architects of training and ability; yet the motion picture theater and playhouse may become a potent factor in the architectural development of a community, so that its influence, artistically as well as

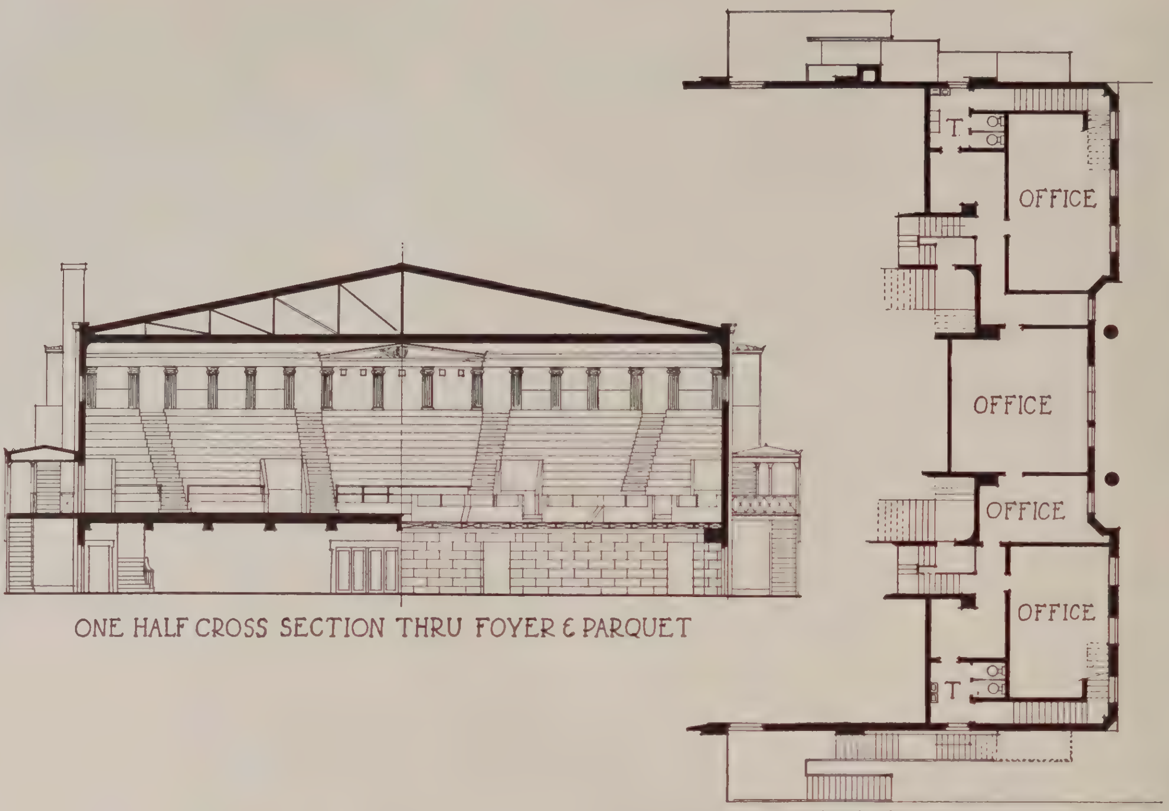

THEATRE FOR BELLEVUE THEATRE CO.
AT UPPER MONTCLAIR N.J.
J.H. PHILLIPS ARCHITECT
H C S 1921

Perspective Sketch of the Bellevue Theater, Upper Montclair, N. J.



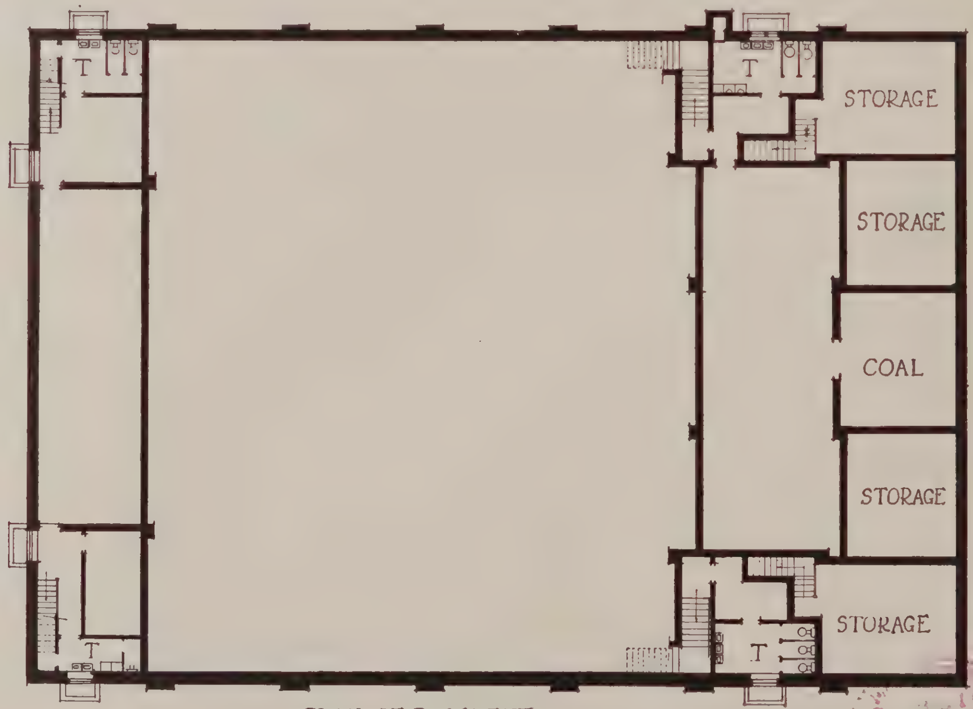
The Bellevue Theater, Upper Montclair, N. J.

J. H. Phillips, Architect



ONE HALF CROSS SECTION THRU FOYER & PARQUET

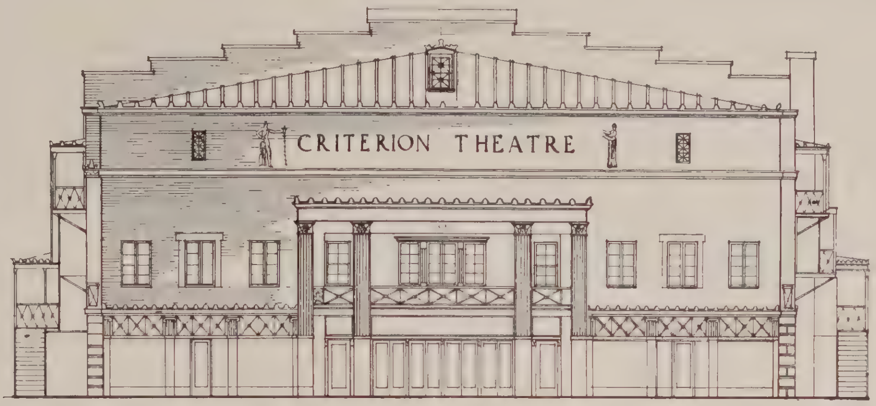
OFFICE FLOOR PLAN



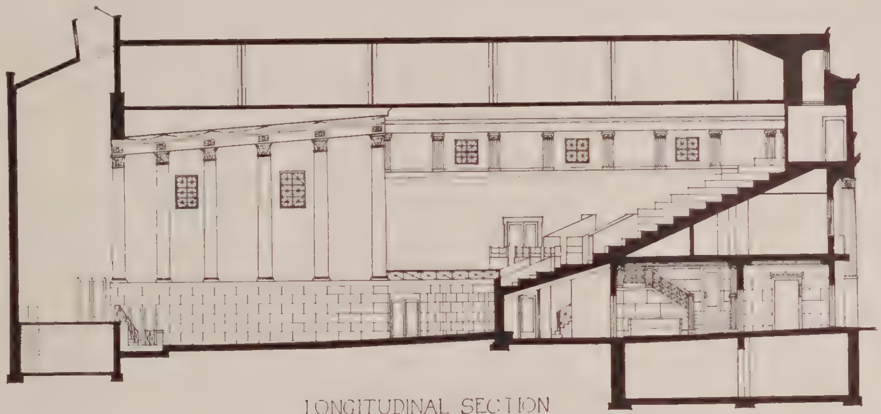
PLAN OF BASEMENT

Preliminary Studies for a Small Motion Picture Theater in the Greek Style

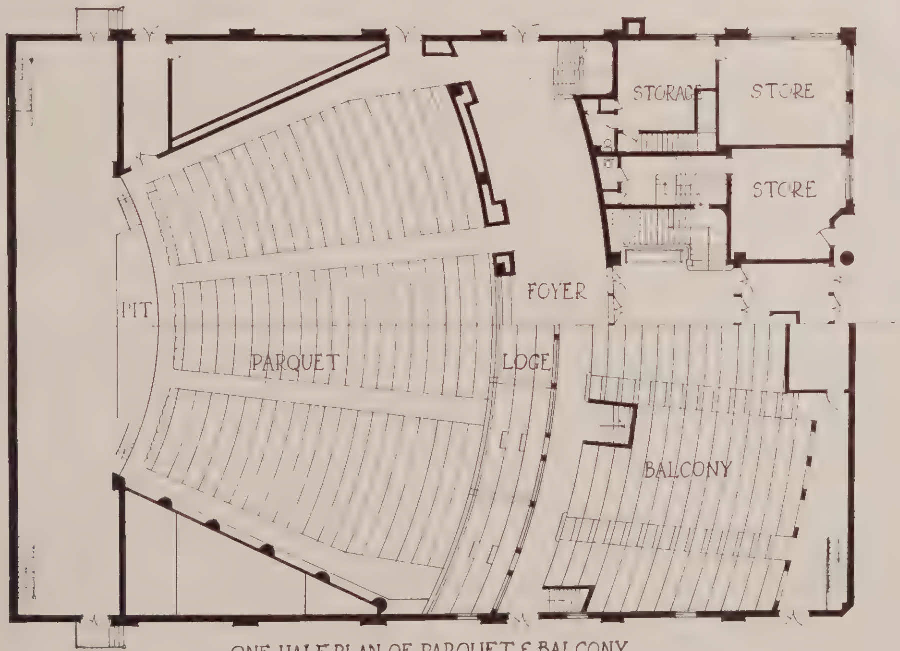
J. H. Phillips, Architect



FRONT ELEVATION

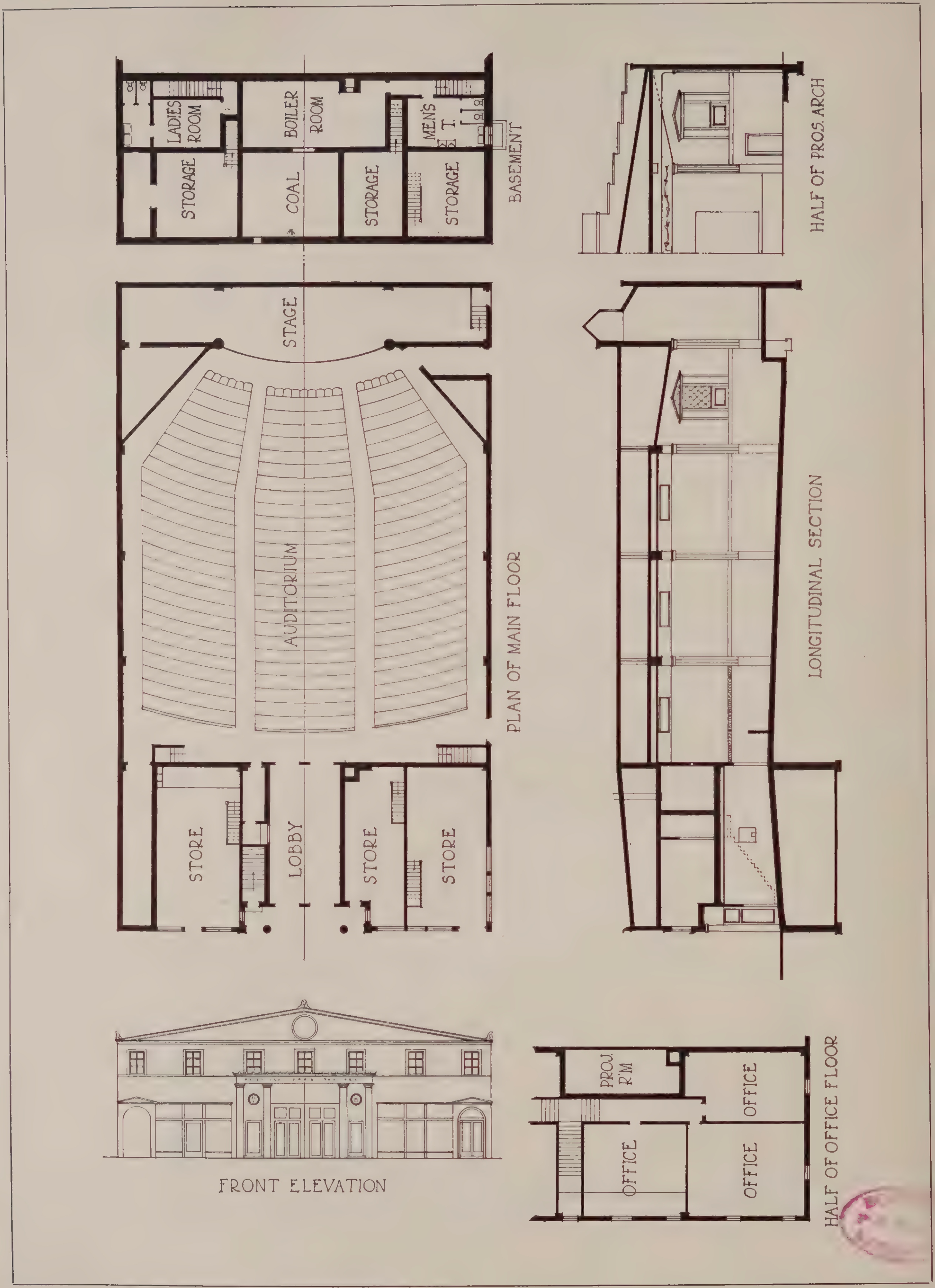


LONGITUDINAL SECTION



ONE HALF PLAN OF PARQUET & BALCONY

Preliminary Studies for a Small Motion Picture Theater in the Greek Style
J. H. Phillips, Architect



Elevation, Longitudinal Section, and Plans of the Basement, Main and Mezzanine Floors of a Motion Picture Theater for a Small Town

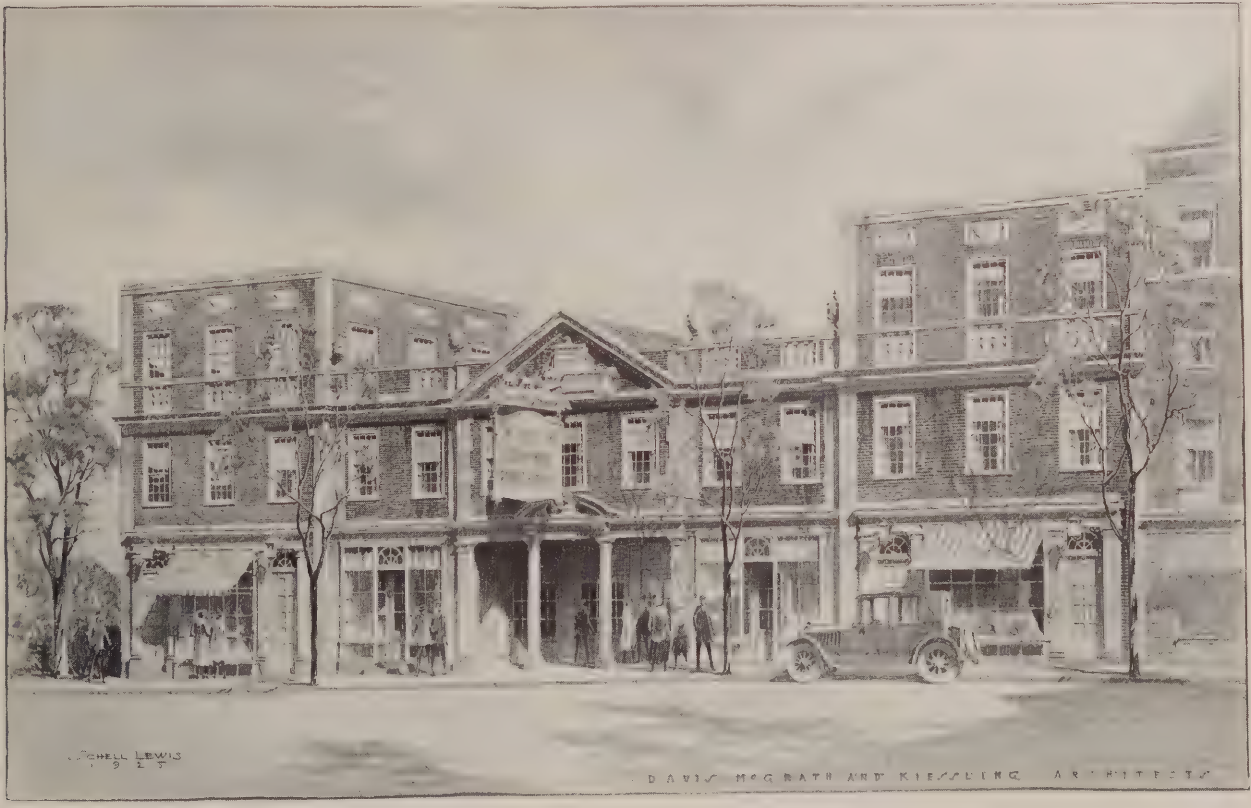
J. H. Phillips, Architect

morally, cannot be overestimated. The same care and study that have brought about the improvement in the public schools of our villages should be devoted to their playhouses, with the same good results.

The main idea in designing a small motion picture theater should be to give it domestic atmosphere, not only in its exterior expression, but in its interior as well. There are too many of them which are nothing more or less than barns, with metal ceilings, poorly ventilated, and having most uncomfortable seats. The influence and the effect on the theatergoing public created by attractive and appealing surroundings, in which people may enjoy amusement and entertainment in an atmosphere of refinement, cannot be over-emphasized. It is one of the most important factors in the life of the country today. If the architect creates a design which has some resemblance to a fine old Colonial building, or to an Elizabethan manor house if this latter style is better adapted to the rural surroundings, he has performed a public service. There are many opportunities for designing beautiful buildings which stimulate the imagination more than does the conventional and stereotyped house, with its sign of blazing lights.

Today, the building laws of New York, and other states as well, give the architect very little opportunity for original planning. The Theater Guild Theater in New York is one delightful exception to this rule. Here no laws have been violated, yet an exterior and an interior as charming, as they are original, have been achieved. In the earliest European theaters are found the precedents from which the modern theater derives its inspiration, as for instance, the Drury Lane Theater attributed to Sir Christopher Wren, and later, the Garrick Theater, attributed to the Adam brothers. Both of these theaters had the interior appearance of private drawing rooms or salons of their days. This should be the aim in our modern picture houses;—the auditorium itself should exemplify the spirit of our life, not alone in the character of its decorations, but also in the simplicity of its architecture. Bright red velvet walls and seats, and gilt ornamented ceilings and wall paneling give a most garish effect. The theater manager seems to have the mistaken idea that this sort of gorgeousness is what the theatergoing public wants. Not alone should the design of the auditorium proper be simple and interesting, but in the modern theater the stage as well should give the artist an opportunity to show all the genius, talent and imagination he possesses. The motion picture theater should be equipped with suitable furniture, mural paintings, and hangings. In fact the stage setting as well as the decorations of the auditorium should express the spirit of today.

In planning small theaters, stores are usually placed at either side of the entrance lobby, and offices are located above. This is the case in the Bellevue Theater, at Upper Montclair, excepting that instead of the lobby and stores on the ground floor and the usual offices above, a restaurant and large hall here take their places. The projecting bays of this small theater, in the English style, give an interesting variation to the flat, stereotyped facade usually


SCHELL LEWIS
1925
DAVIS McGRATH AND KIESSLING ARCHITECTS

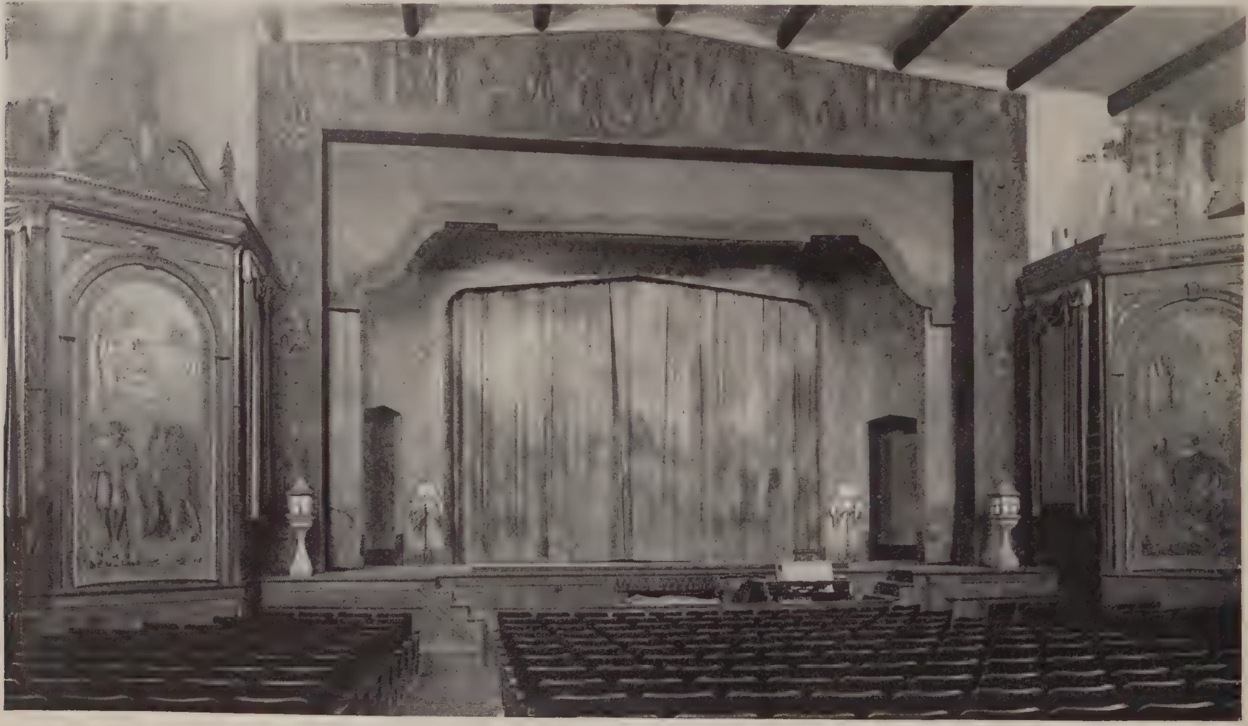
Proposed Motion Picture Theater at Mamaroneck, N. Y.
Davis, McGrath & Kiessling, Architects

found. The entrance lobby between the stores is designed to look like an old English shop front, in half-timber and brick. Panels serve for the display of advertisements, and a flagstone floor and old fashioned lanterns, used as lighting fixtures, still further heighten the English atmosphere. The foyer also has a flagstone floor and rough stucco walls. Oak paneled wainscoting is used in the main auditorium below rough plaster walls. For the ceiling treatment, the steel roof trusses are covered with oak to resemble heavy beams, instead of employing the conventional dome. The proscenium opening is marked only by a decorated painted border, similar to that of a tapestry, recalling some of the stage sets designed by Inigo Jones during the Stuart period.

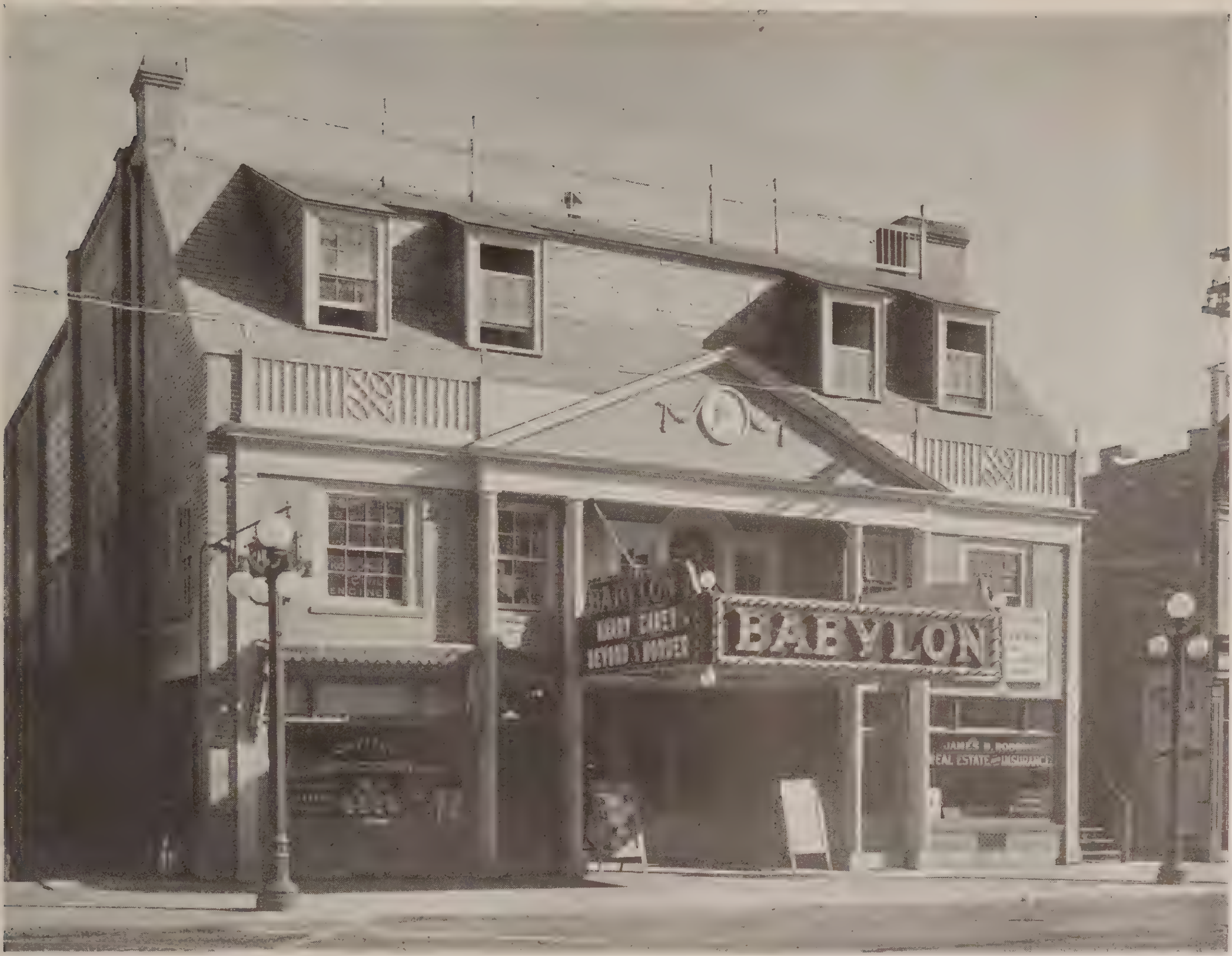
The location of the picture booth is also most important. Back of the gallery, where there is one, has proved to be the most satisfactory place, though in some instances it has been inserted in the gallery itself. This latter location is unsuitable, as the gallery always has more or less vibration, caused by the movement of the audience; and also, if the booth is not placed high enough above the aisle, shadows may occur on the screen. The more inconspicuous the picture booth and the more mystery secured in a picture theater, the better. Noise from the projection machine must be avoided as far as possible. Again, it is most important that the building be properly ventilated and heated. Many small theaters have no ventilating systems at all and are inadequately heated. Comfortable seats and proper sight lines are of the greatest importance. To make the first one, two or three rows in a balcony into loge seats or boxes, as in the Bellevue Theater at Upper Montclair, is a good idea. Private stairs at each end of the foyer lead up to these *parterre* or mezzanine boxes, which are divided off with balustrades, making them ideal for small theater parties.

A number of motion picture houses have recently been built in what is known as the "stadium" style, which has as its prototype the Greek and Roman outdoor theaters. This type of plan is very impressive and is well adapted for large picture houses; but it must be built on a large scale to be practical and effective, and the exits and entrances should be well studied out and arranged, otherwise this plan is rather confusing to the audience. In smaller houses, having seating capacities of from 600 to 700, it has proved to be more practical and to afford more comfort and intimacy to have a balcony. It is an interesting bit of history that the plays produced in the Greek open-air theaters were followed many centuries later by the miracle and mystery plays, which were given in the market places or in the courtyards of taverns, and that the buildings surrounding these places of theatrical production furnished the idea for the plan and design of theater interiors even today.

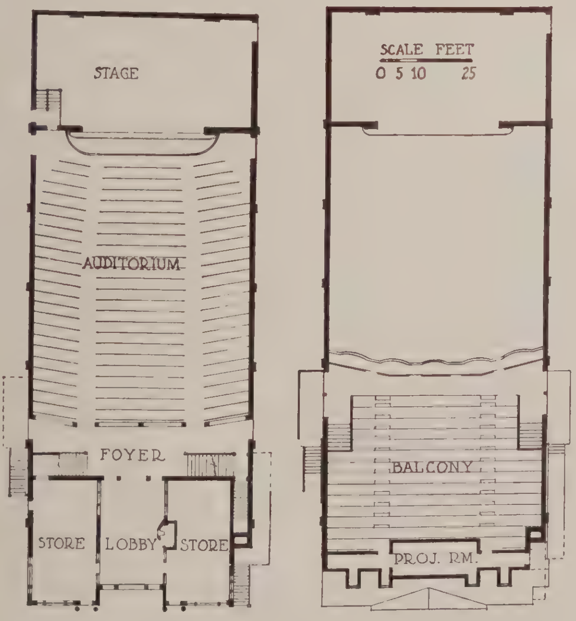
The Globe Theater, first of the theaters of old London, was built about 1576. It was a most interesting building, circular in plan, with a large platform set in the pit or center of the auditorium for a stage. With this for a setting, the genius of Shakespeare moved the people to wonder, and made the beginning of theater architecture one of the great achievements as well as one of the glories of the Elizabethan period. It is to be hoped that a marked improvement in the design of our small motion picture theaters will likewise be one of the great and glorious accomplishments accredited to the architects of today, and this improvement is sadly needed.



Stage and Organ Screens in the Bellevue Theater, Upper Montclair, N. J.
J. H. Phillips, Architect

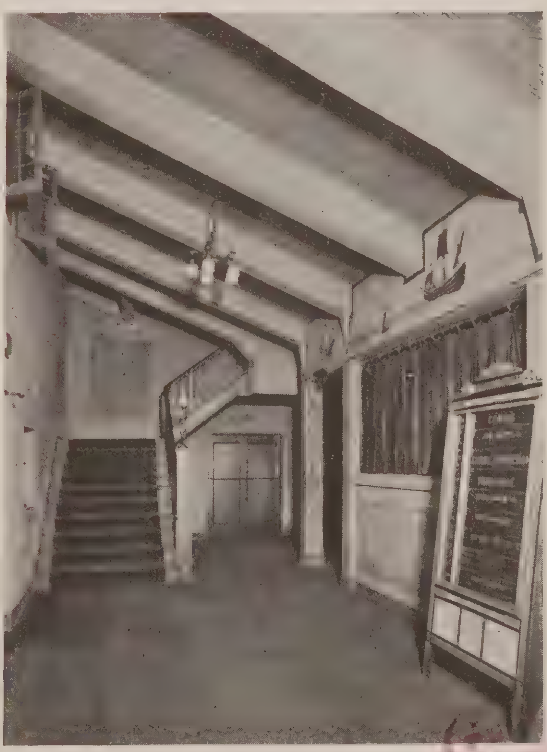


THE BABYLON THEATER, BABYLON, N. Y.
J. H. PHILLIPS, ARCHITECT

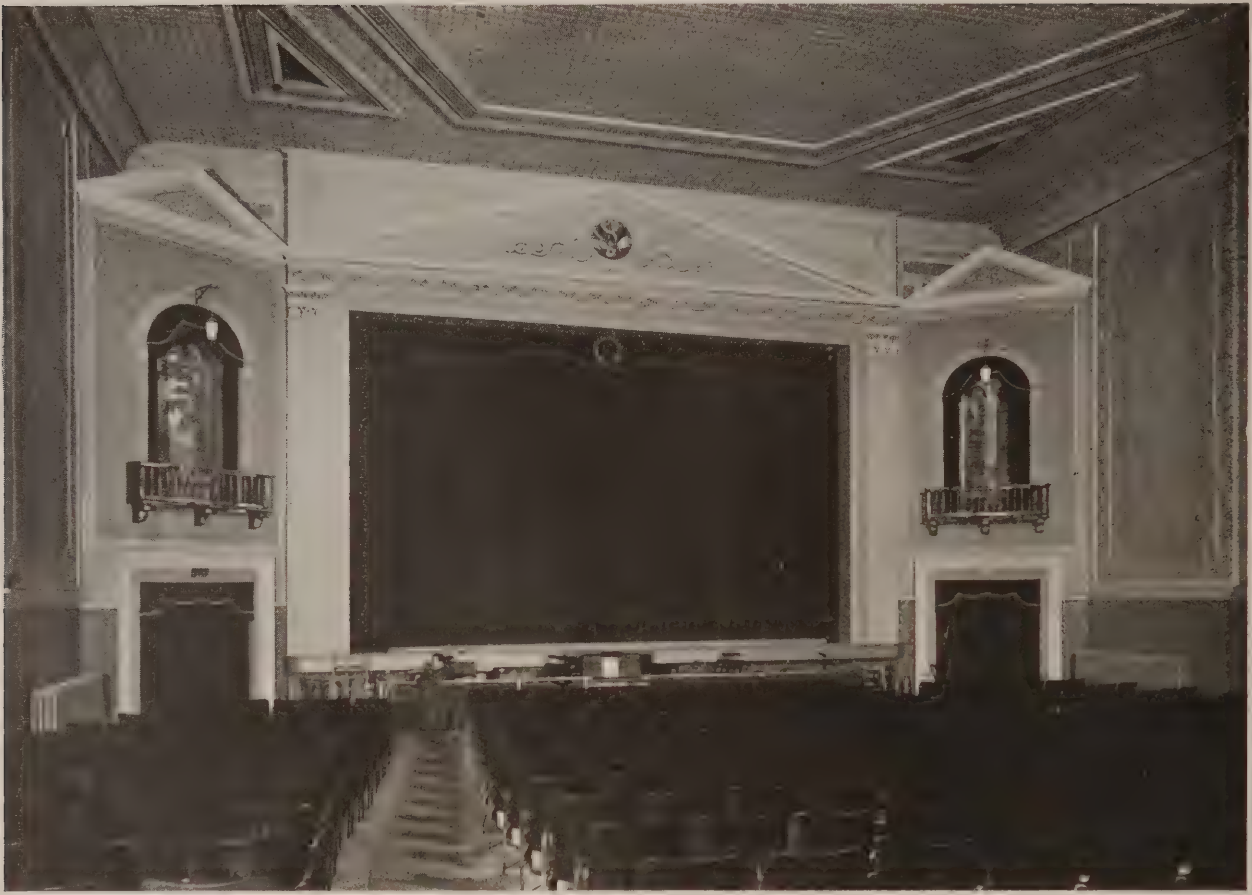


Entrance Floor

Balcony Floor



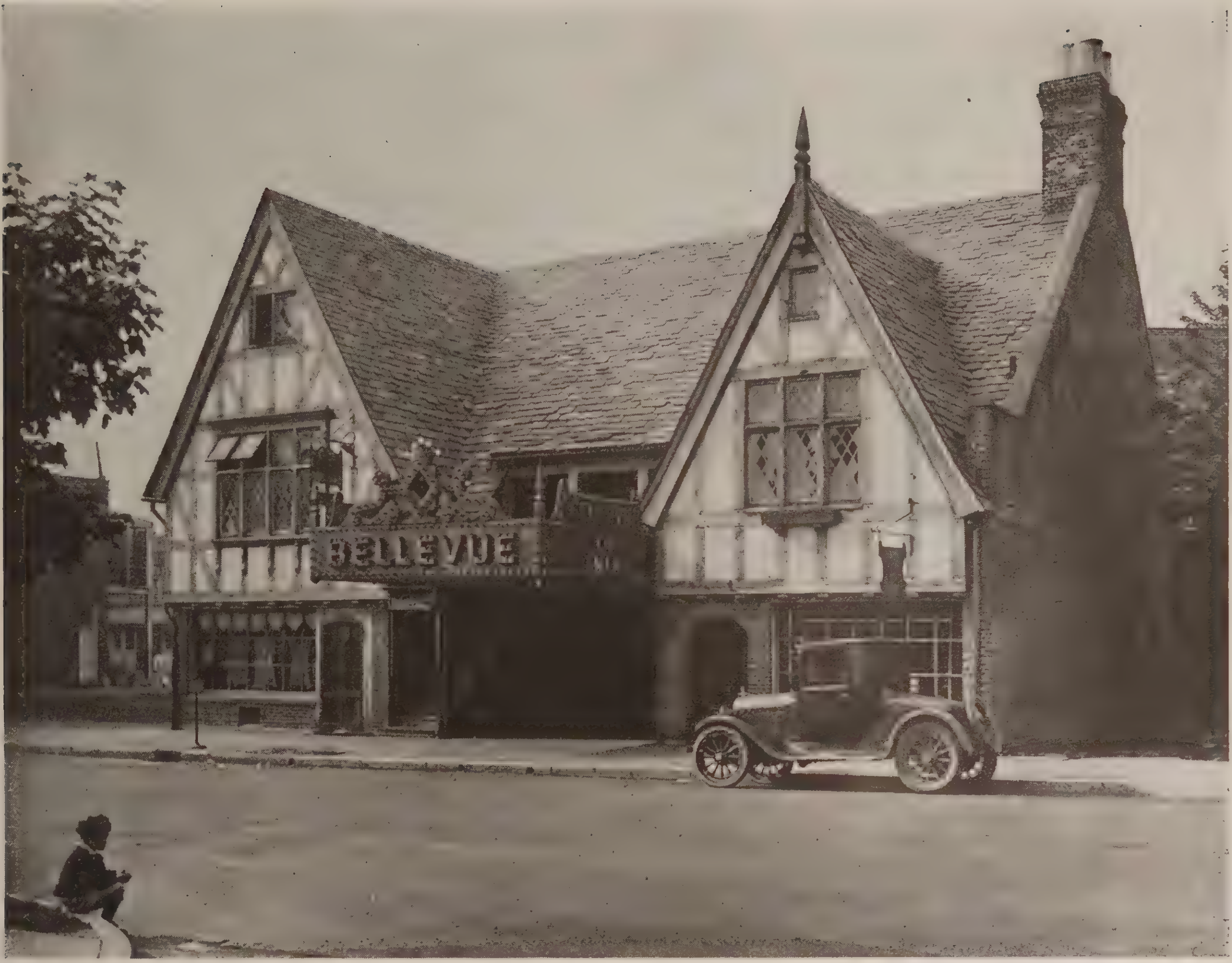
Entrance Lobby Showing Stairs to Balcony



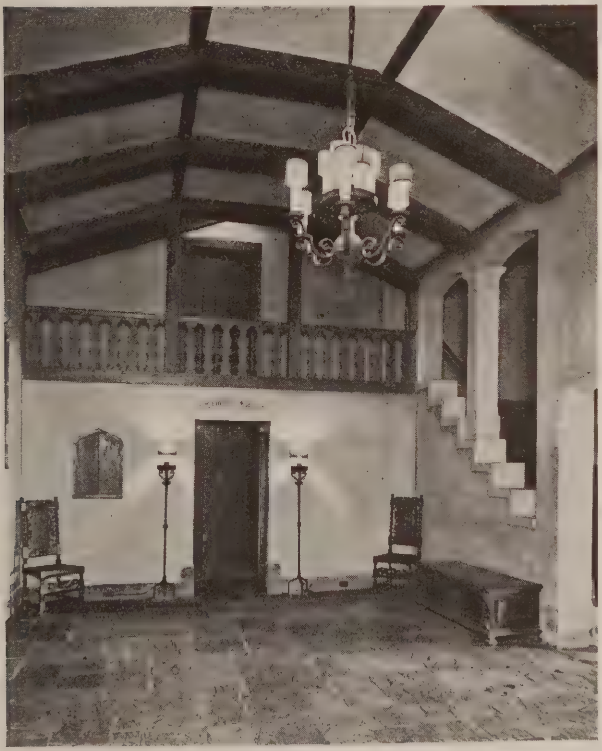
General View of the Auditorium

SIMPLICITY and severity of detail mark both the exterior and interior of this attractive small theater. Brick walls with wood trim painted light gray, together with the slate-covered gambrel roof, give a decided Colonial feeling to the exterior. A white pedimented portico dominates and marks the center of the design and the entrance to the theater. The pleasant location between the outer columns of the portico of small doors leading into shops which balance the entrance portico is a happy plan, tying together as it does the shops and the theater entrance. Not only the windows on the second floor but also the dormers in the roof help to accentuate the informality and domestic character of this little theater. Offices, reached by an outside stairway at the right of the building, occupy the second floor over the entrance lobby and shops. Back of these offices are retiring rooms for men and women, with individual toilet facilities, each connecting directly with the mezzanine floor of the theater, which is decorated in a simple manner, by painting the trim, ceiling and walls different harmonizing colors. Designs and borders in fresco ornament the wall panels and pediments of the boxes and proscenium arch.

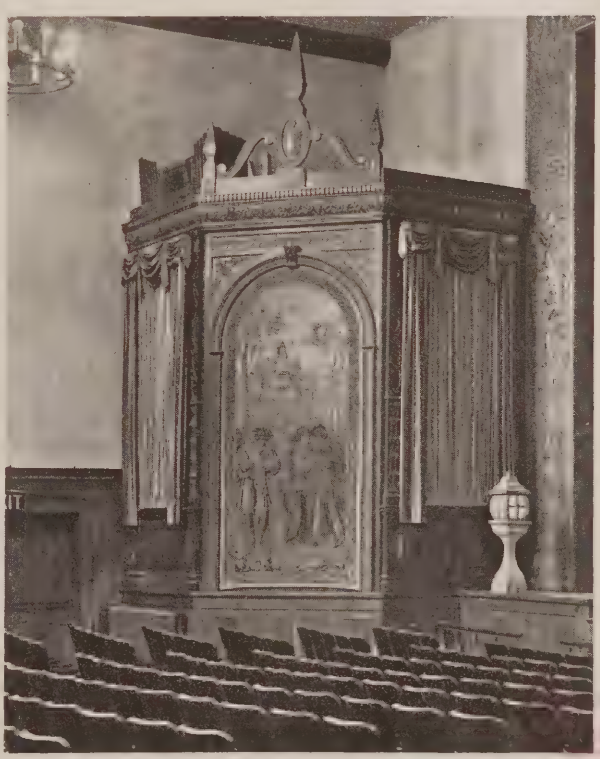
Fireproof construction was used throughout this theater, which seats 1,050 people and contains an approximate cubic footage of 279,125. The building cost $83,737 without interior decorations, organ, seats and the electrical equipment, in June, 1923.



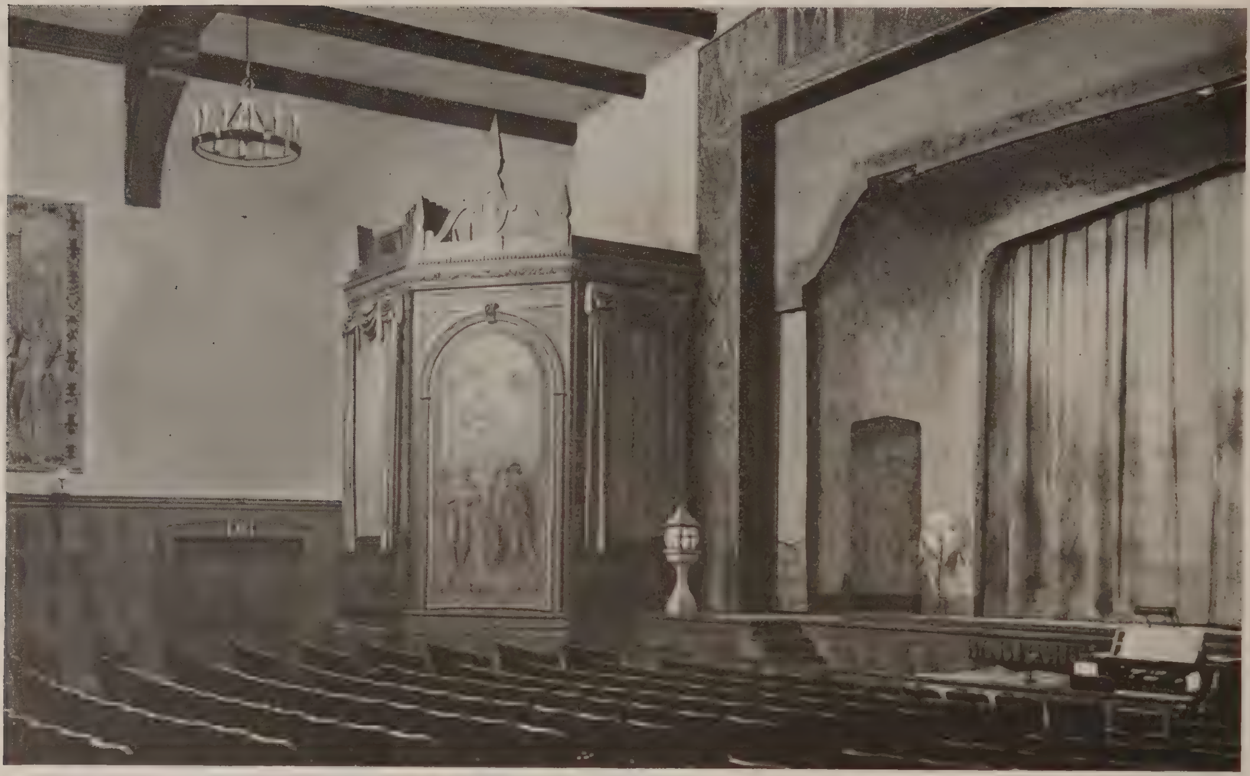
BELLEVUE THEATER, UPPER MONTCLAIR, N. J.
J. H. PHILLIPS, ARCHITECT



Entrance Foyer, Showing Stairs to Balcony

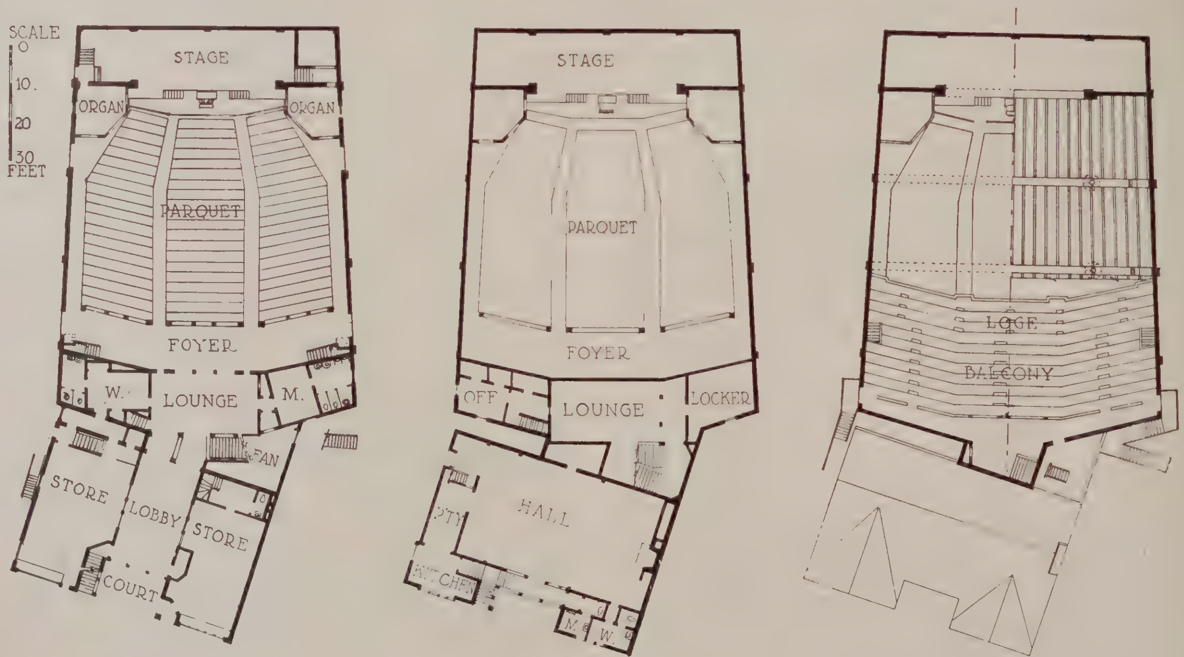


Detail of Organ Screen



Stage and Organ Screen from Orchestra

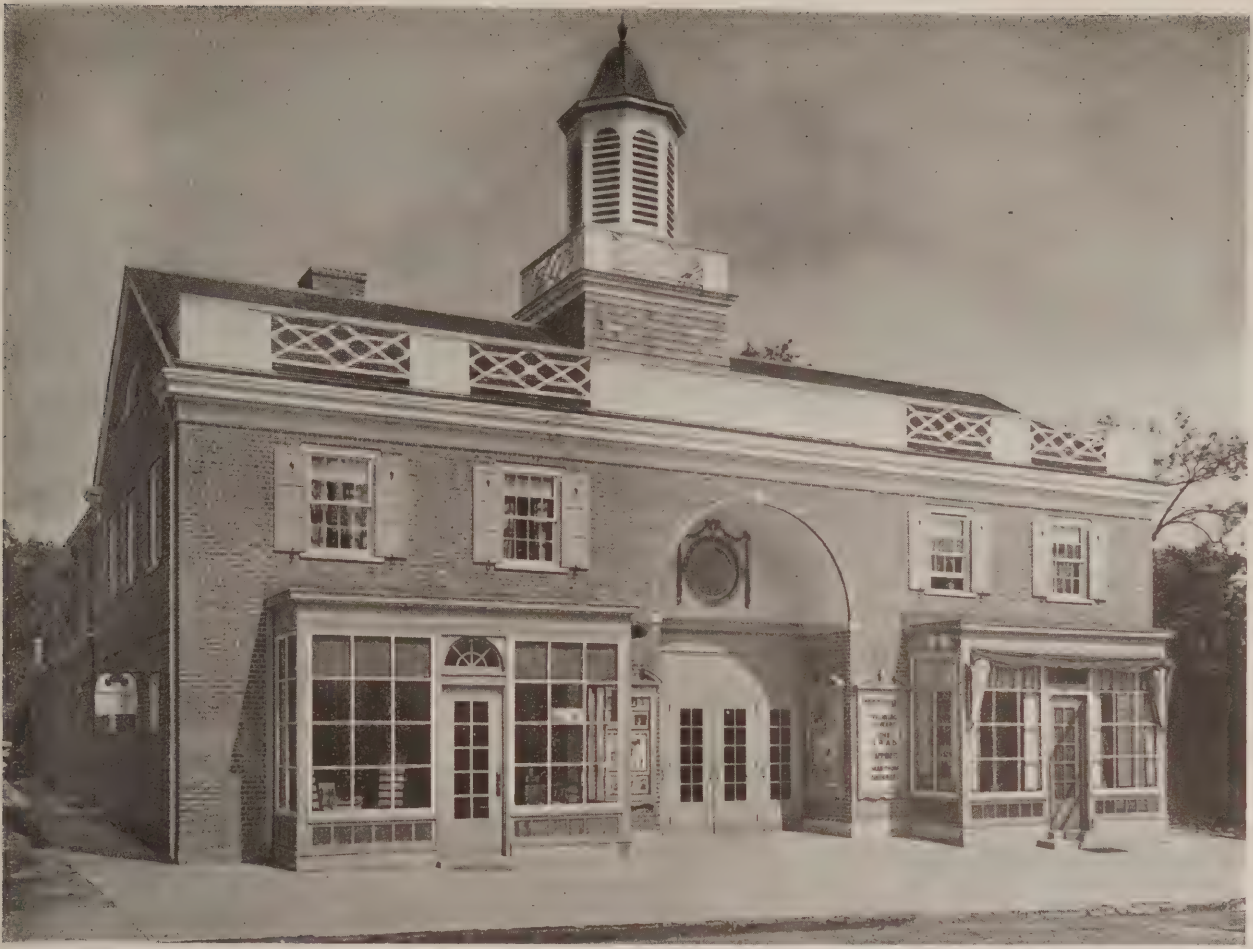
THE Bellevue Theater, at Upper Montclair, N. J., completed three years ago, is one of the most picturesque and unique small motion picture theaters ever designed in this country. Containing 1,010 seats, of which 96 are in the mezzanine loge, this theater was built at a cost of approximately $168 per seat. The construction is fireproof throughout the entire building. On the first floor, flagstone is used for paving the lobby and foyer, and cement on reinforced concrete for the auditorium and balcony. The windows in the theater have metal frames and sashes; wood frames with leaded glass are used in the upper front windows, and wood frames and muntins are used for the shop windows.



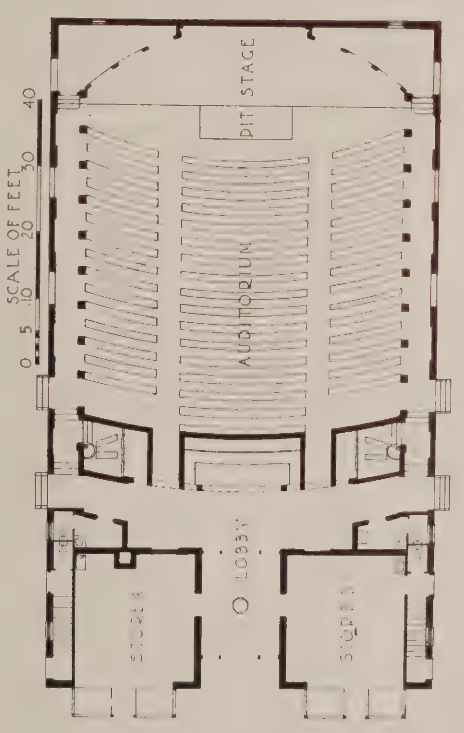
Entrance Floor

Mezzanine Floor

Loge and Balcony Floor



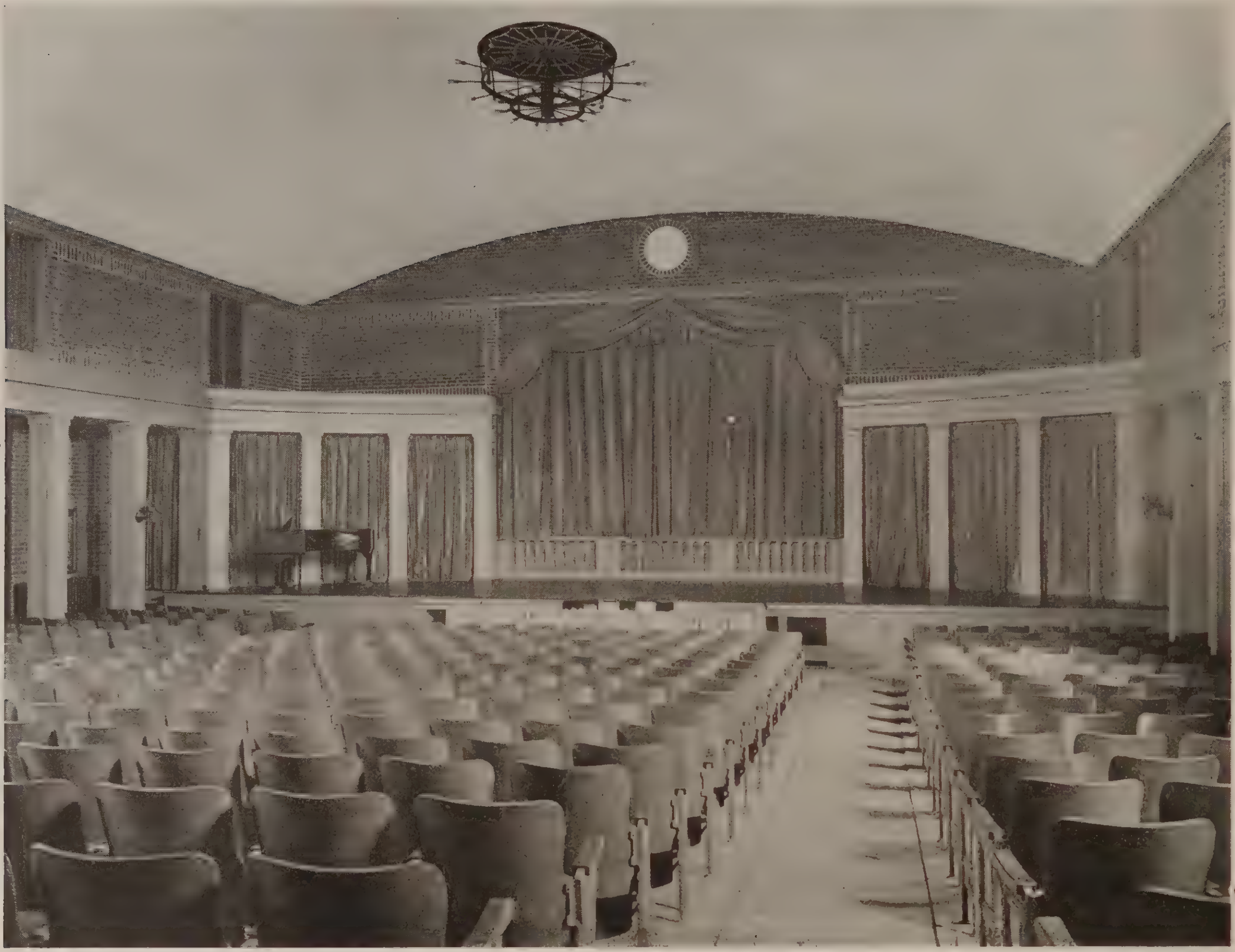
THE PLAYHOUSE, NEW CANAAN, CONN.
DAVIS, McGRATH & KIESSLING, ARCHITECTS



Main Floor

THE town of New Canaan, Conn., is indeed fortunate in possessing so original and attractive a motion picture theater as "The Playhouse." Every detail of this charming Colonial building shows refinement and study. The deep recess of the center archway, which emphasizes the entrance to the theater, is pleasantly balanced on either side by projecting shop fronts, designed in the English style, with small panes of glass. Above each of these shop fronts two windows still further express the character of the building by their small panes of glass and green painted paneled shutters. Red brick and wood trim painted white are used for the exterior of the building. The well studied cupola of suitable size adds much interest to the design, as do also the roof railings and ornamental cornices. The center panel of the railing serves excellently as a signboard for the theater. No clumsy or projecting electrical sign mars the simple dignity of this building. Ornamental bulletin boards at either side of the main entrance to the theater provide sufficient and proper space for present and future picture programs. Concrete floors, brick interior walls, and stucco ceilings on wire lath provide the necessary fireproof elements in the construction. The trim and window frames, both inside and outside, are of wood painted.

The interior architectural design shows remark-



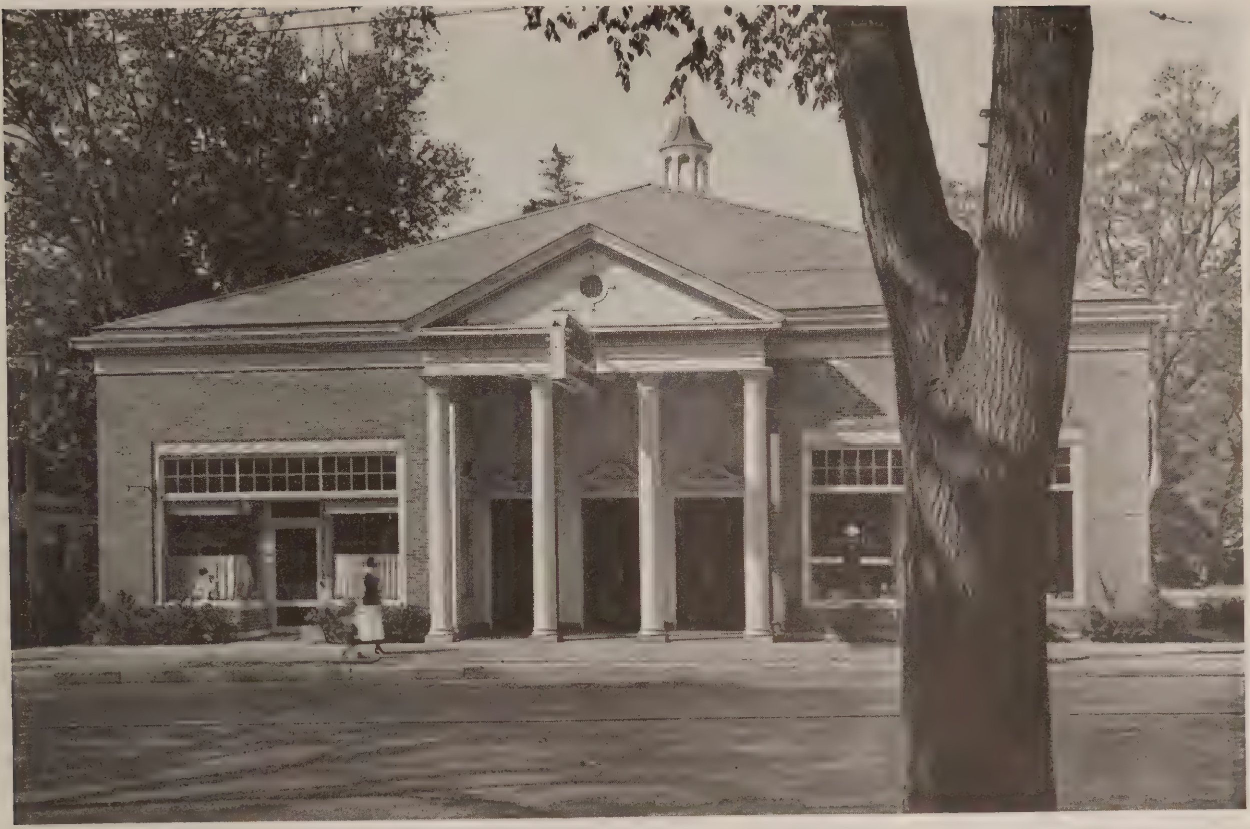
View of the Stage from the Auditorium

able originality and merit. White painted pilasters and piers, carrying a heavy entablature, together with an interesting balustrade immediately under the picture screen, form a color contrast with the carefully laid red brick walls. The slightly curved ceiling adds height and dignity to the auditorium, while the introduction of a low front stage across the entire proscenium is an unusual and successful treatment. Even the center chandelier of wrought iron accords with the simple decorative quality of the entire design, emphasizing the pleasing rural note which dominates the building. Likewise the plan is compact, balanced and well studied. A spacious entrance lobby leads into a wide foyer, off which entrances lead to the auditorium, stairs to the balcony and exit doors to outer courts on either side of the building. Four aisles and six exits make it possible to empty this small theater in a remarkably short time. When such a charming example of motion picture theater architecture as this is found, the question always comes to mind why more attractive small theater buildings are not designed. Experience has shown that a small building well designed costs no more than a small building having no architectural merit. It is not, after all, a question of material and construction, so much as it is the architectural ability and appreciation of the designer that actually count.

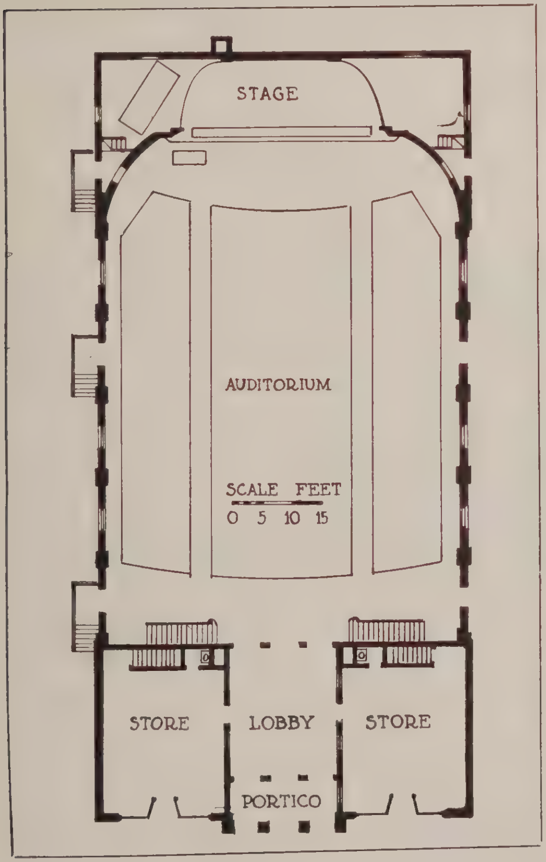
Above each of the front shops a spacious apartment is located. reached by a separate outside stairway. A shallow balcony or mezzanine, containing a number of boxes for small theater parties, is located at the entrance end of the auditorium above the foyer. Another unusual as well as practical feature of this small theater is the outside aisle, extending the length of each side of the auditorium, suggesting the side aisles of an old fashioned meeting house.

The use of exposed but carefully laid brickwork for the interior walls of the auditorium is perhaps unusual, but in this case it adds to the effect of rugged simplicity and solid construction. The use of simple draperies in the openings between the pilasters and for the curtaining of the screen itself, gives a pleasing decorative note in which the color of the draperies contrasts harmoniously with the red of the interior brickwork. This use of interior architectural detail and material for the theater interior is well handled and satisfactory in effect. If the ceiling were movable, as is sometimes the case in theaters located in warmer climates, this interior architectural treatment would be still more appropriate. The low and shallow front stage is quite suitable here.

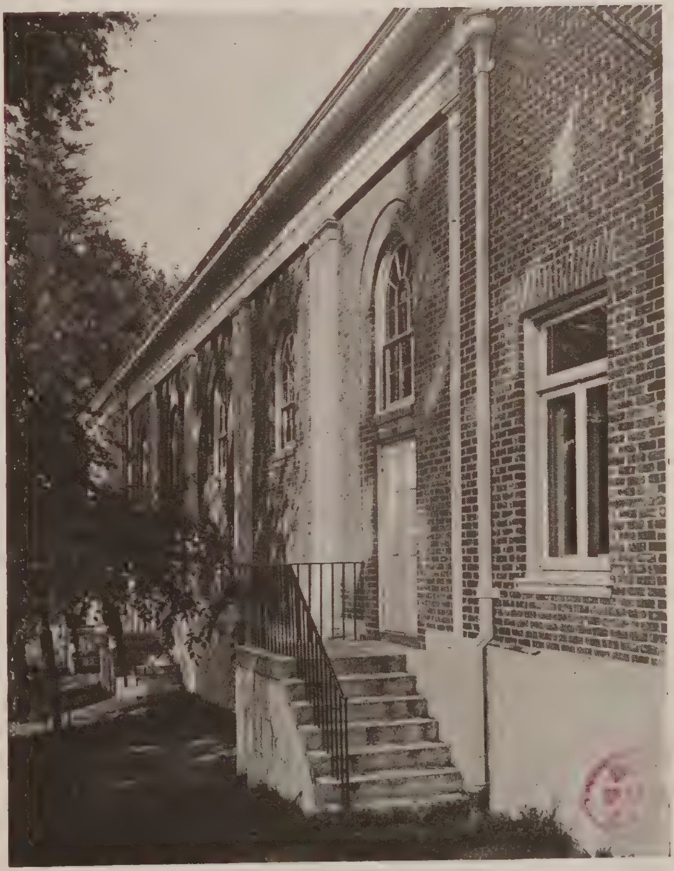
This ideal small theater, containing approximately 168,000 cubic feet, and 500 seats, was finished in September, 1923, at a cost of about $100 per seat.



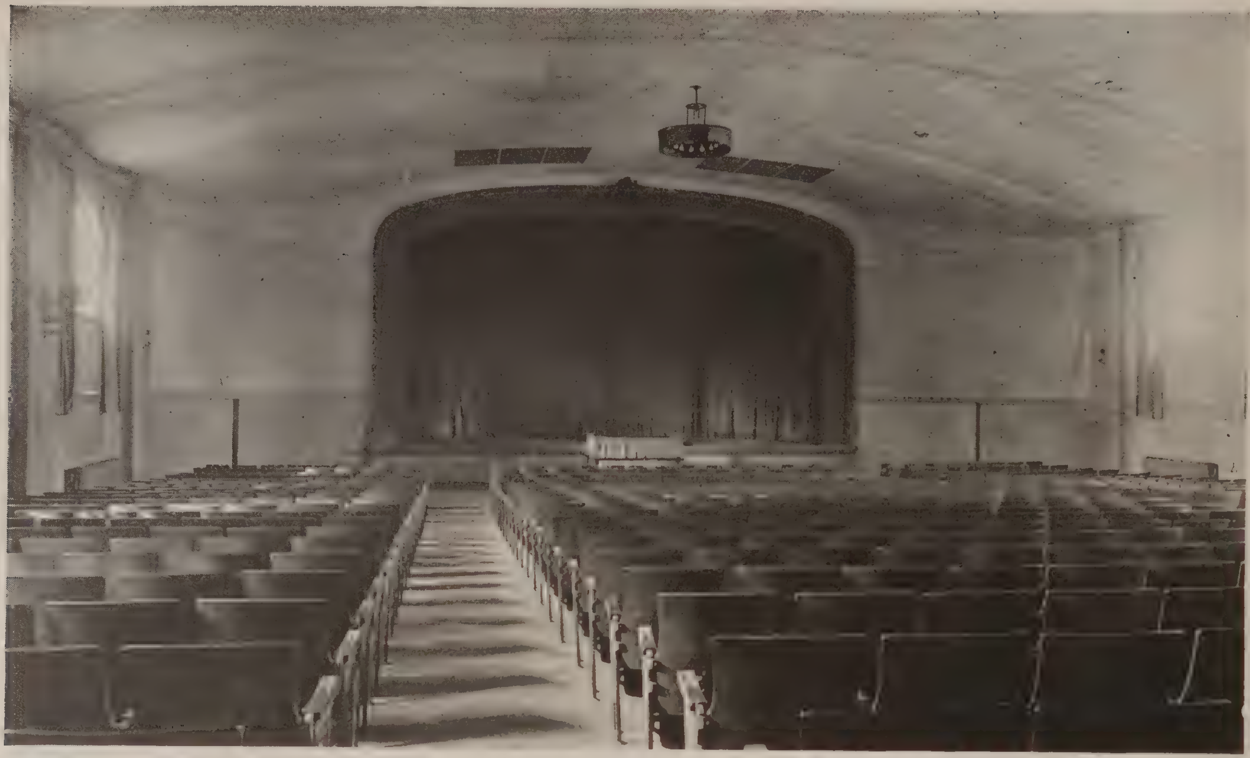
THE RYE THEATER, RYE, N. Y.
HARRY LESLIE WALKER, ARCHITECT



Main Floor

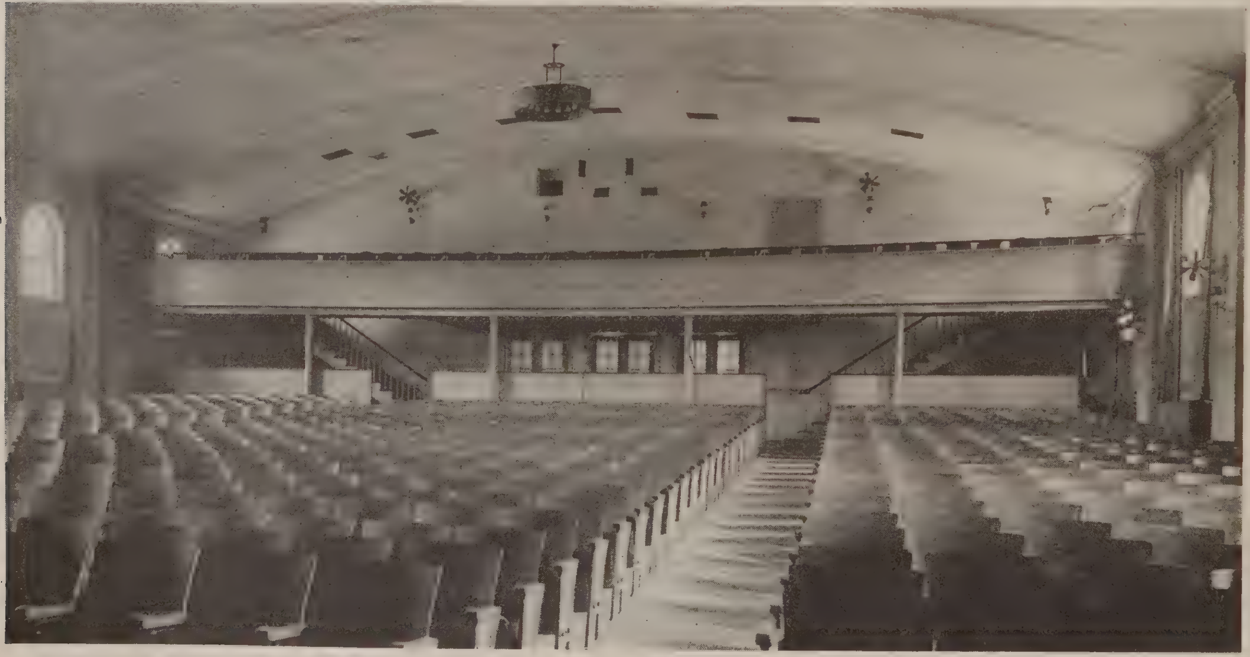


Detail, Showing Side Exits from the Auditorium

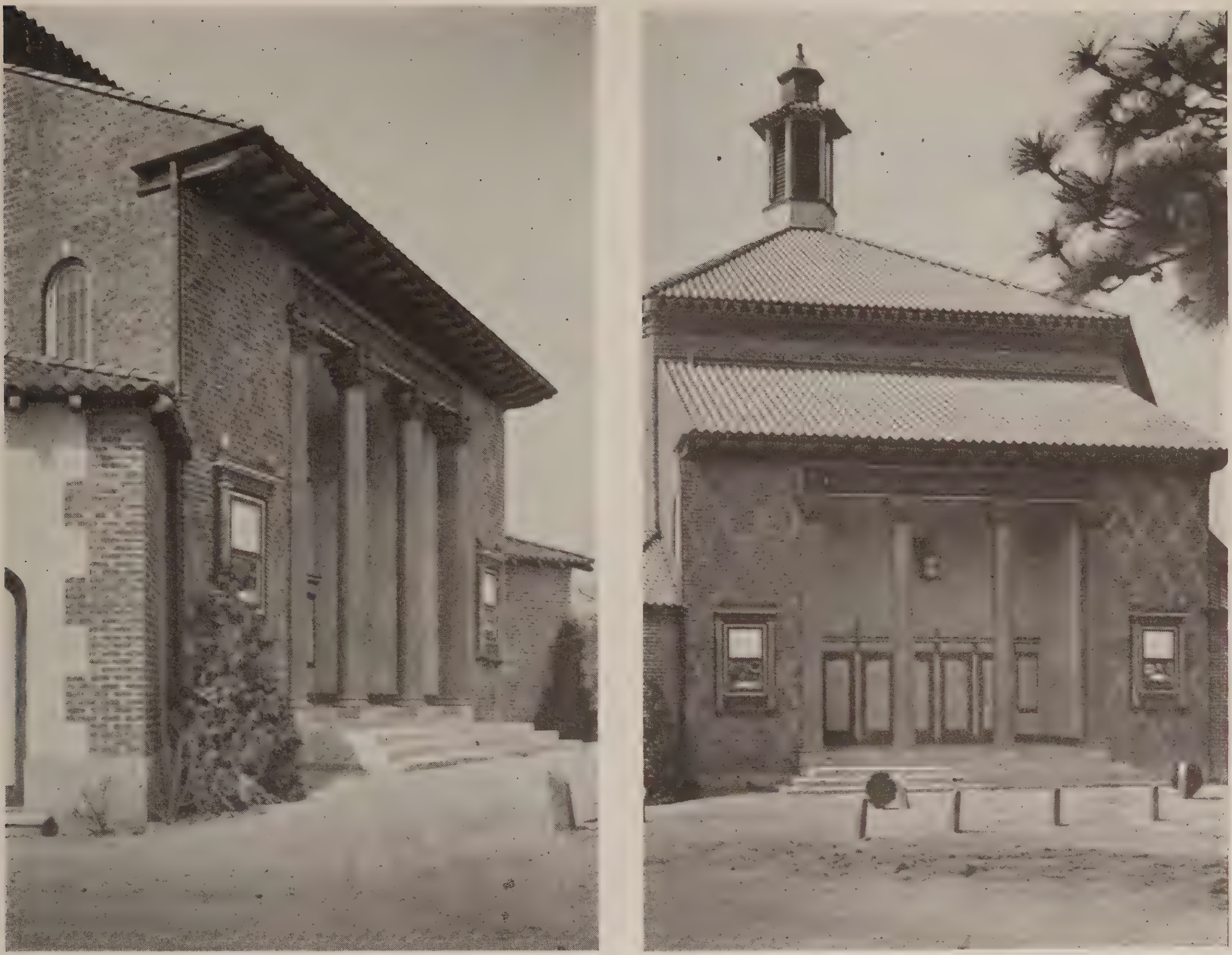


View Toward the Stage in the Auditorium

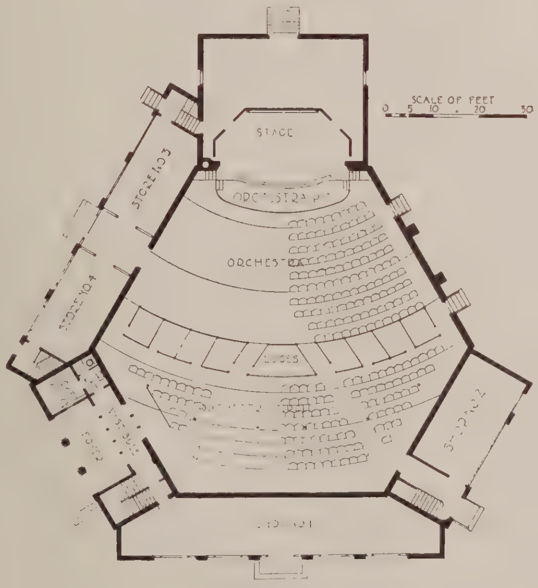
OF the thousands of motorists who pass over the Boston Post Road every year, there are probably few who have not noticed the attractive small motion picture theater on the main street of Rye, N. Y. Built in the Colonial style, with a graceful entrance portico suggestive of "Homewood," this little theater possesses unusual refinement of detail and charm of proportion. A spacious shop on each side balances the main entrance to the theater. It is rather a pity that the architect was not permitted to use small panes of glass in the lower parts of the shop windows, as well as in the transoms. The low hip roof, covered with gray slate and surmounted by a delicately designed open cupola or belfry, forms a pleasant crowning feature to this Colonial design. The building is of red brick with wood trimmings, painted white. Slow-burning construction was employed; wood frames, double-hung, were used for the windows, and the cement floor, which rests on concrete, was covered with linoleum in the auditorium. Seating 650 people, this little theater cost $90,000 when completed in the summer of 1921.



View in the Auditorium Toward Entrance and Balcony



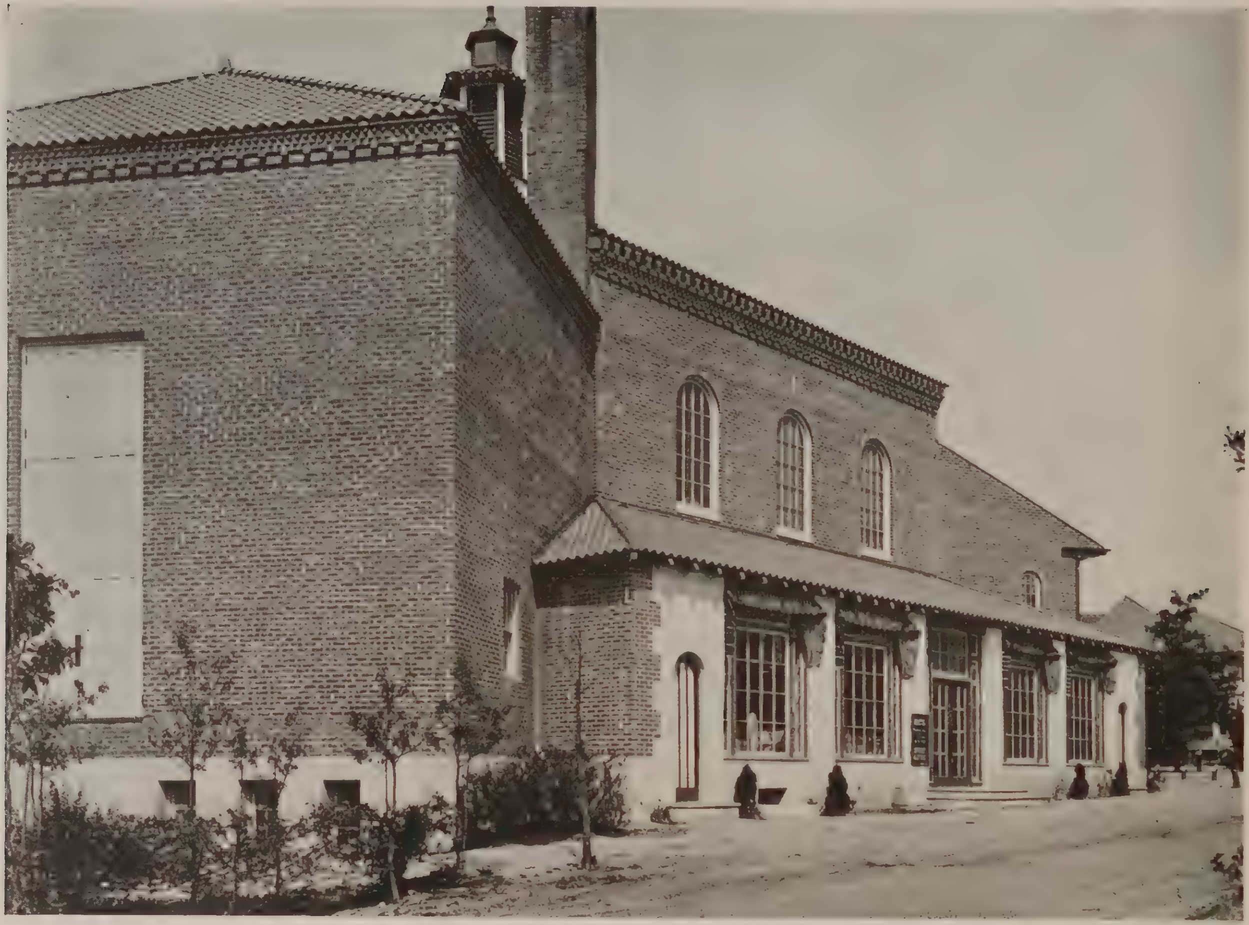
MOTION PICTURE THEATER, PINEHURST, N. C.
AYMAR EMBURY II, ARCHITECT



Main Floor

THERE is probably no more unique or original small "movie" house in the country than this theater at Pinehurst. The hexagonal plan is as unusual as is the Italian design of the exterior. A high recessed portico with columns and pilasters supporting a richly decorated frieze panel on Corinthian capitals gives a foreign effect to the entrance facade. The main walls of the building are of red brick laid up in a diaper pattern, surmounted by an interesting brick cornice reminiscent of Renaissance brickwork in northern Italy. The green glazed Spanish tile roof and tall cupola further accentuate the suggestion of Mediterranean architecture. Tall arched windows break the side walls of the theater auditorium above the low, one-story shops on either street front. The exterior of the building shows a remarkable architectural consistency and uniformity, expressing as it does, in outline as well as in detail, the plan and purpose of the interior. The hexagonal plan shows sides of unequal length, necessitated by the shape of the auditorium.

The entrance foyer and vestibule, containing ticket office, toilet and a stairway to the balcony, is located on one of the shorter sides of the plan, providing entrance to the orchestra at one side instead of at the center. A deep orchestra circle with a

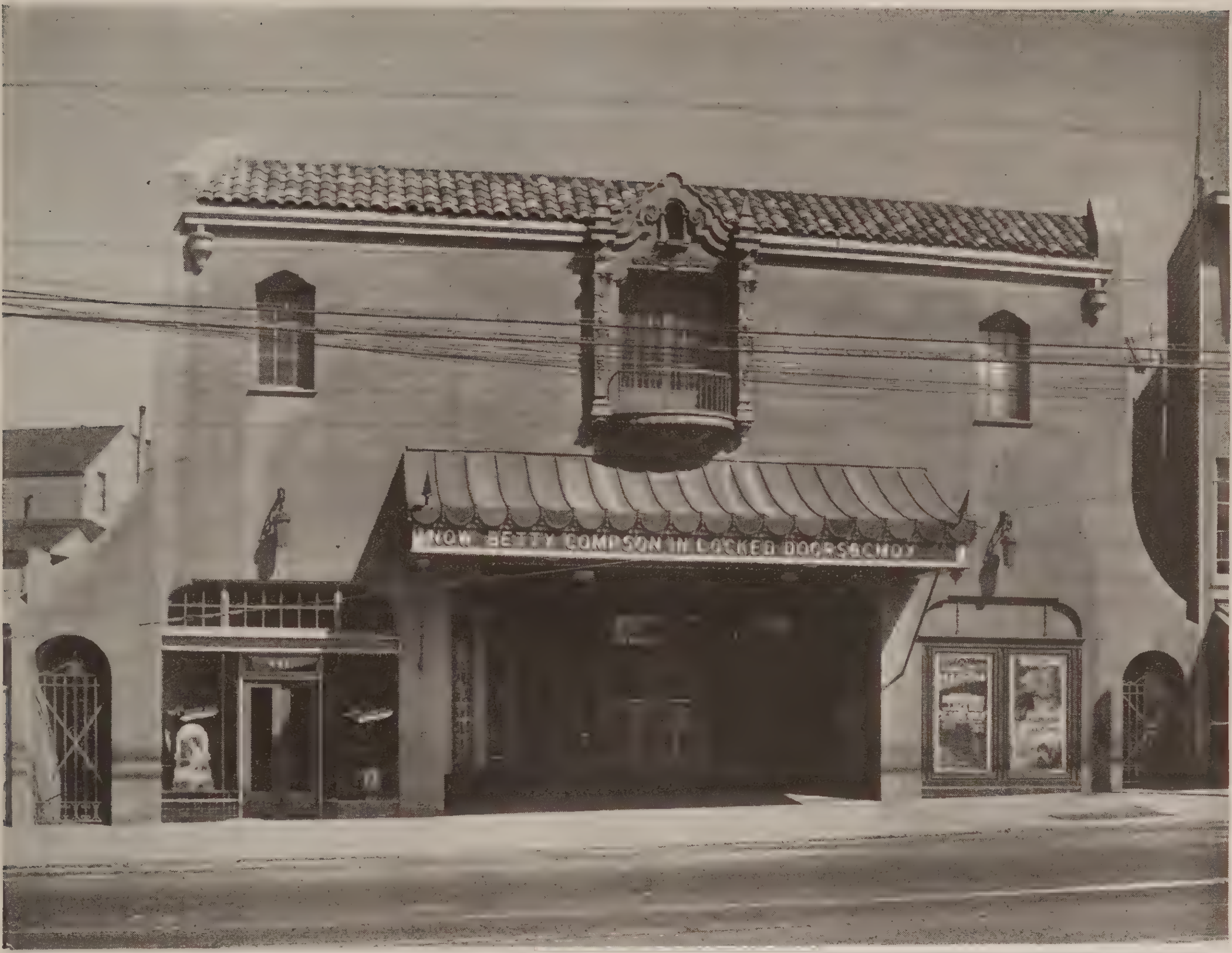


Detail Showing Arrangement of Shops Around Theater

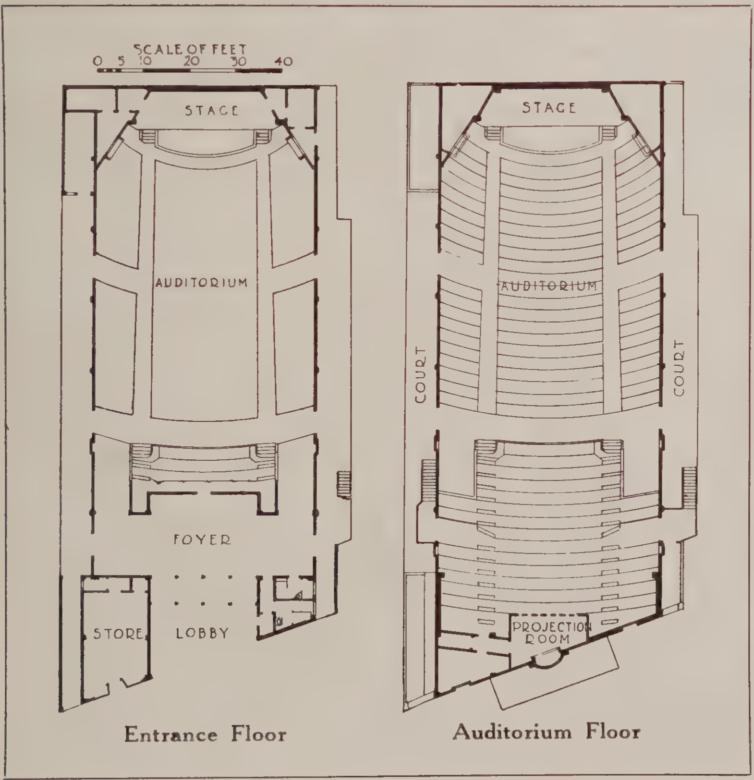
mezzanine loge above occupies the rear of the theater. Although intended primarily for motion pictures, the stage affords sufficient depth, with a large scene and property room at the rear, to make it suitable for legitimate drama as well as for motion pictures. Spacious exits occur at intervals in the side walls of the auditorium, and separate, enclosed stairways lead to the balcony above the orchestra circle, providing ample means of exit, whether required by emergency or customary use.

Particular attention should be called to the logical and attractive use of cement, combined with brick, on the fronts of the lateral, one-story shops, in which the windows and the center entrance door are unusually well designed and proportioned. Small panes of glass give scale to these openings as they do also to the arched windows in the wall of the theater auditorium above. The roofs of these shops are of slope similar to that of the roof of the main building and are also covered with green glazed Spanish tile. The gayly colored striped awnings and painted side doors add further to the festive character of these one-story shops. At the front of the theater, the plaster walls of the open entrance portico as well as the screen-like effect, painted black and white, of the entrance doors themselves, give interest and dignity to the design. This is further enhanced by the ornamental and successfully designed bulletin boards on either side of the entrance portico. Here, twisted colonnettes, supporting delicate entablatures capped by pineapple-like ornaments, accentuate the Southern Renaissance character of the design.

Seldom has the problem of designing a building erected for business purposes been more successfully solved. For the irregularity of the lot, a very unique and practical plan has been evolved, and there were developed elevations showing unusual resource and architectural skill on the part of the designer, who has already achieved a nation-wide prestige as a designer of country houses. Designed as a small town theater, to be used primarily by winter visitors to this southern resort, the construction employed was fire-resisting rather than fireproof. The floors are all of wood, laid on heavy timbers supported by brick piers, and the roof construction also shows the use of similar material. The cubic footage of approximately 230,000 provides a seating capacity of 780. No cost figures are obtainable, since the building was erected by local contractors, and without the supervision of the architect. As the cost of the site on which the building stands was undoubtedly not excessive, and as four shops form a part of the layout of the plan, the revenue obtained from the motion picture theater itself and from the shops should be sufficient to make a very adequate and satisfactory return on the amount of money invested.



BAY VIEW THEATER, SAN FRANCISCO
CHARLES F. STROTHOFF, ARCHITECT; G. F. STAHLBERG, ASSOCIATE ARCHITECT

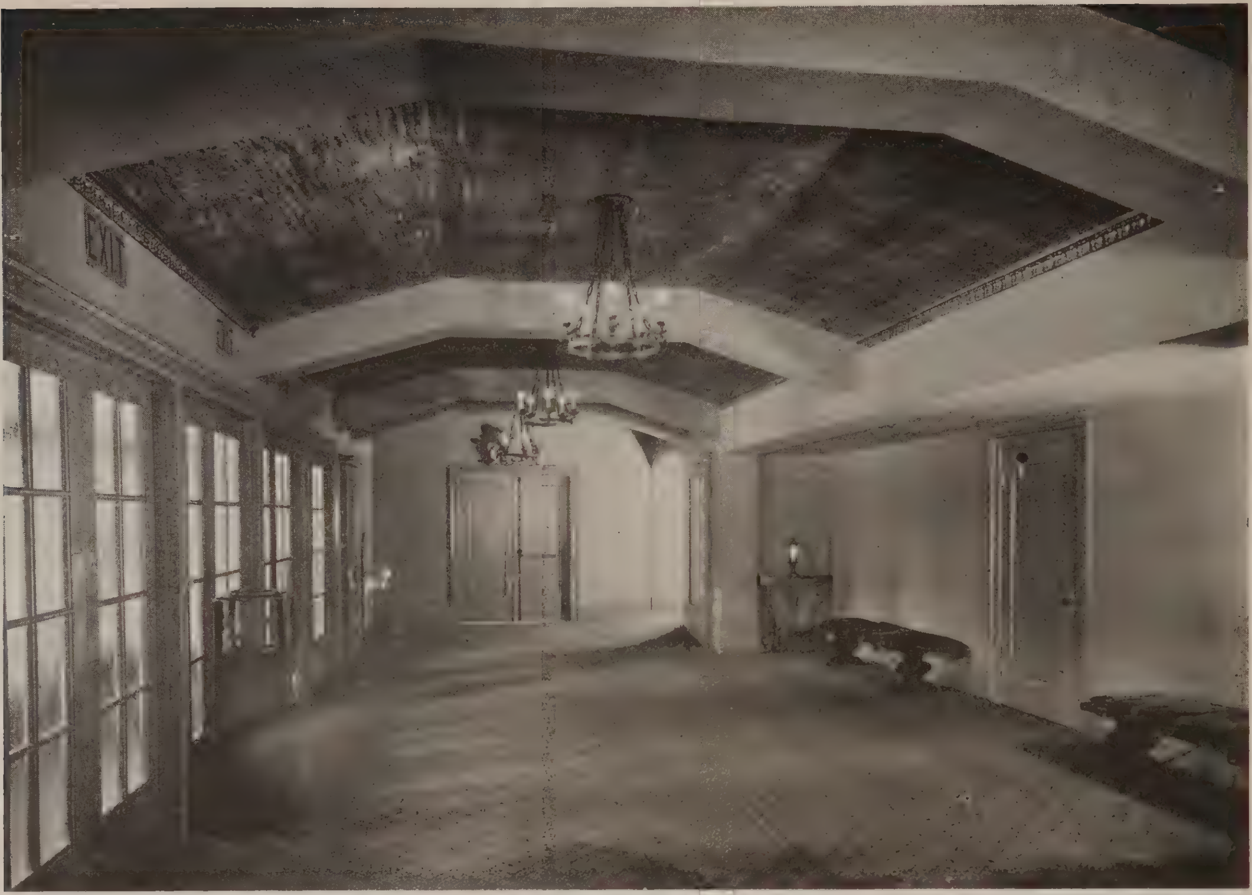


Entrance Floor

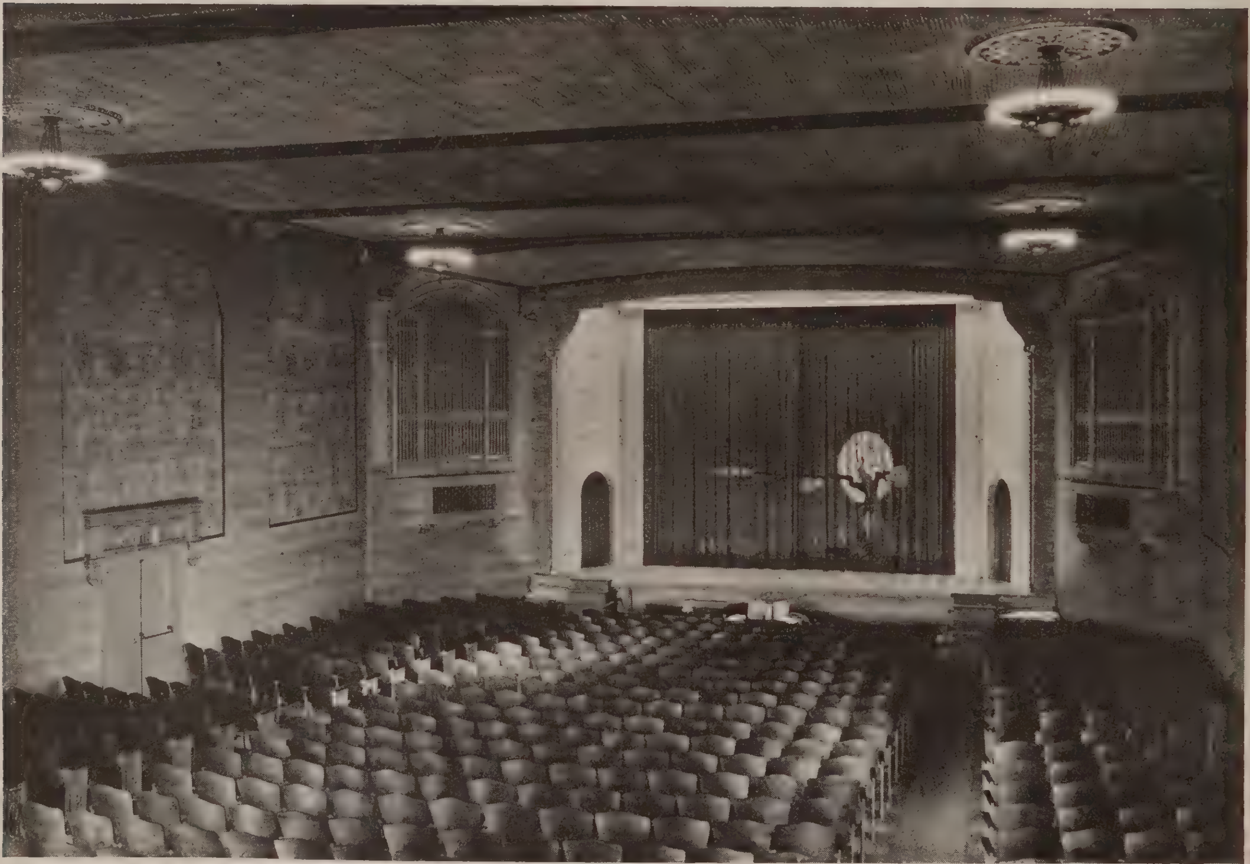
Auditorium Floor

QUITE appropriate to its location on the Pacific coast, this little motion picture theater shows an attractive facade in the Spanish style, a facade well balanced and interesting because of the sparingly used and well placed ornamentation. Appropriate emphasis is given to the main entrance of the theater by the spacious recessed lobby, further sheltered from the sun and the weather by a metal awning or canopy, below which appears, unobtrusively and unobjectionably, the necessary electrical signboard. The entrance loggia is balanced by small shops, in the windows of which use of small panes of glass is unfortunately confined to the transoms.

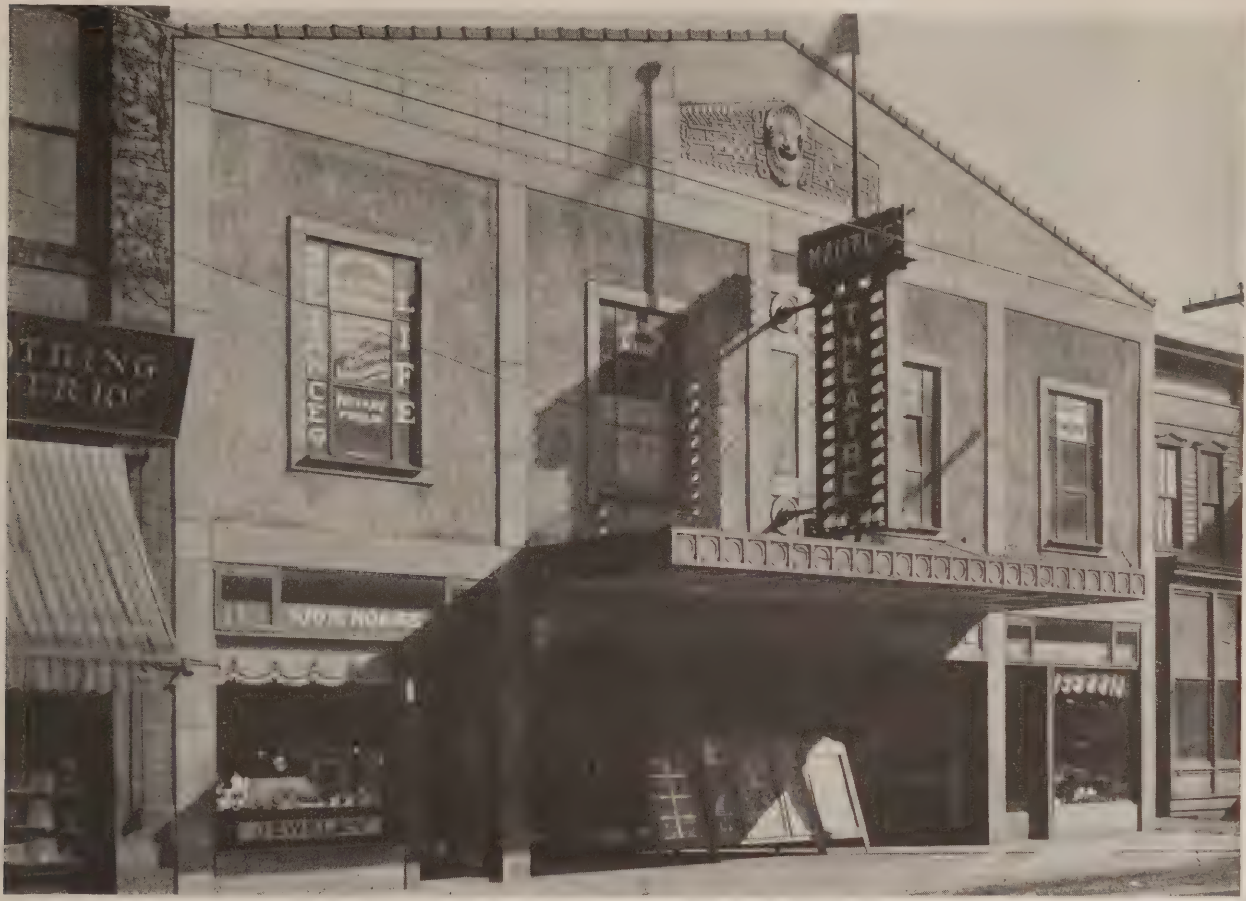
Fireproof construction is used for this little theater, with oak and Oregon pine for the trim and other wood details of the auditorium. Having a seating capacity of 890, this theater containing 192,448 cubic feet cost, without the organ, chairs and furnishings, but structurally complete, $58,000 at the time of its construction in the autumn of 1924.



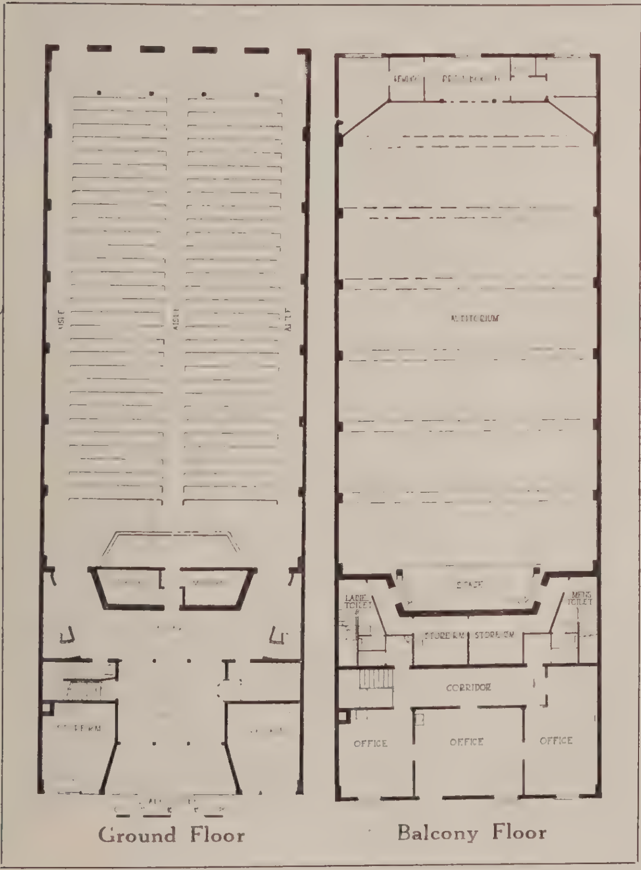
Entrance Foyer



General View of the Auditorium



MAUTE'S THEATER, IRWIN, PA.
DOUGLAS O. ELLINGTON, ARCHITECT

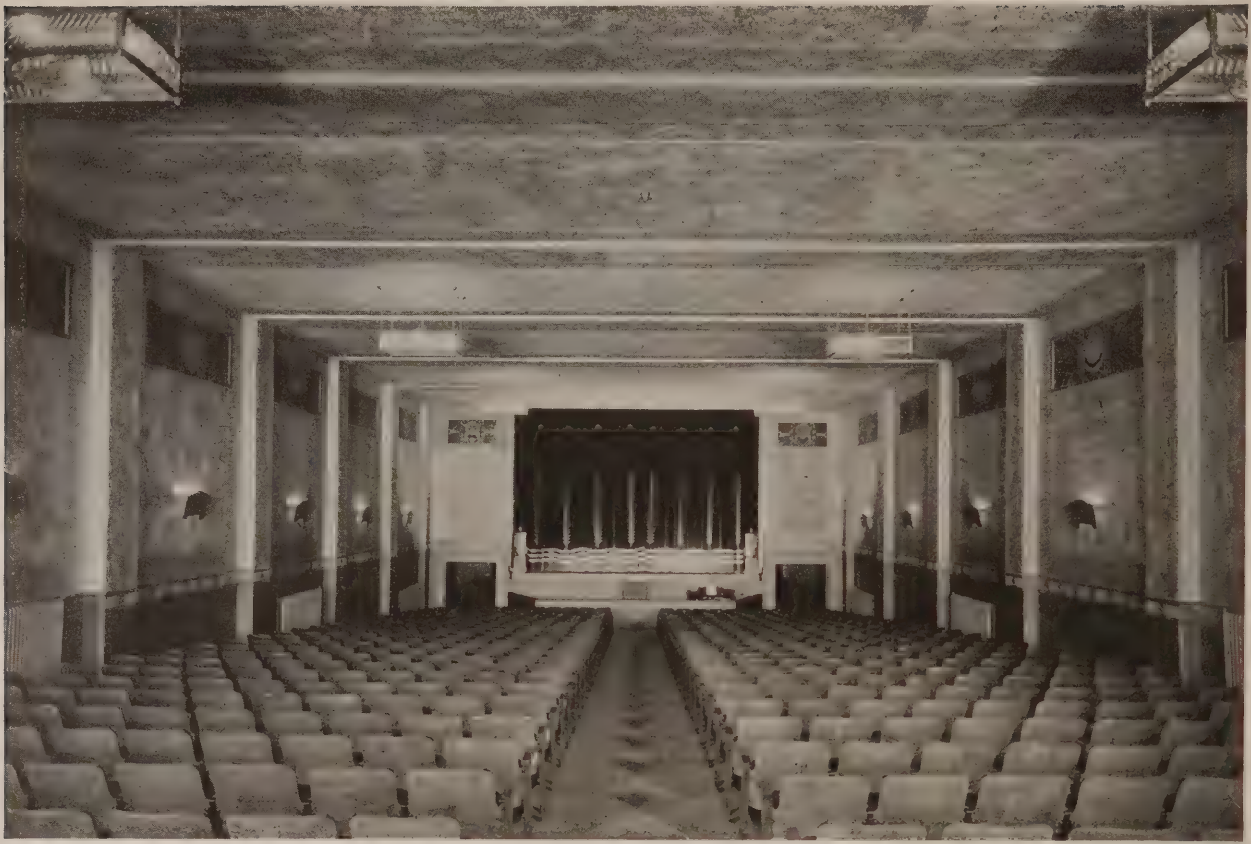


Ground Floor

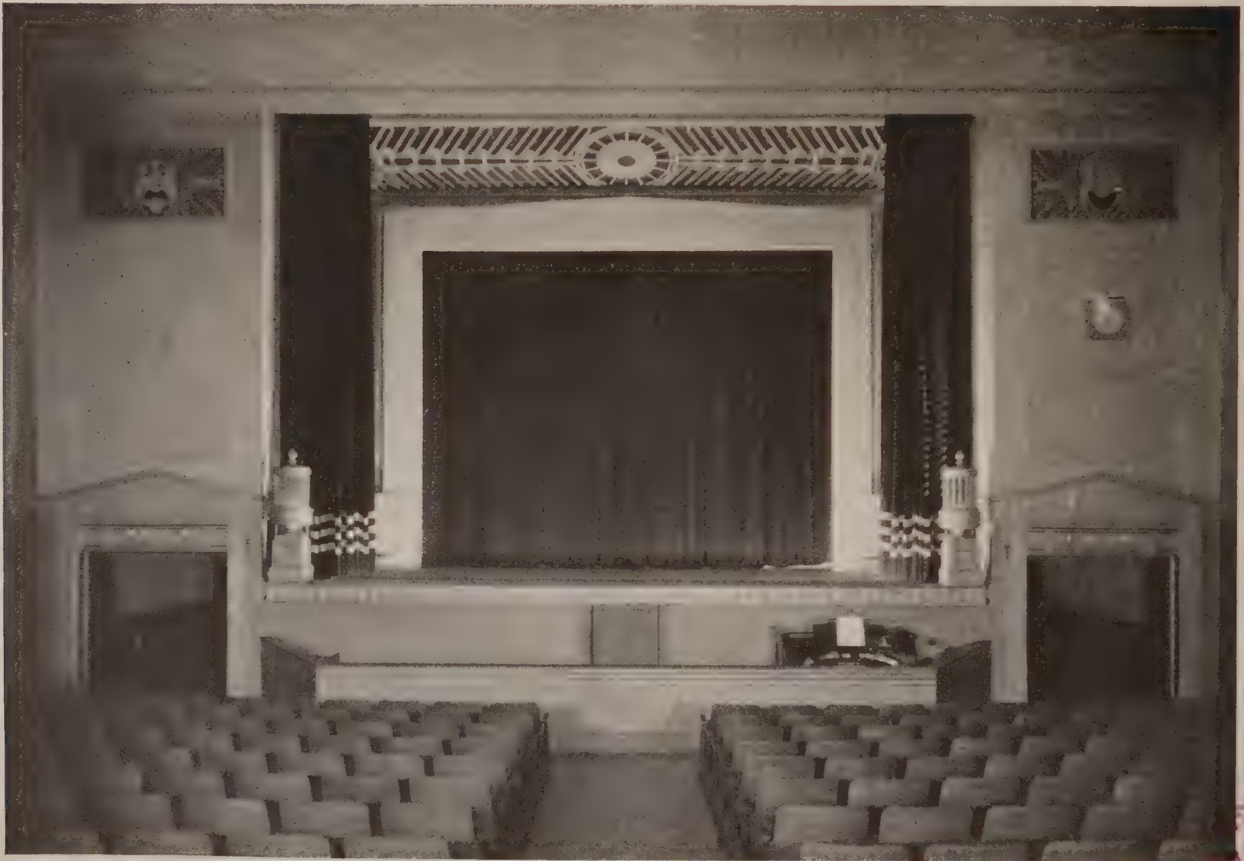
Balcony Floor

IT is a reassuring sign of a better appreciation of the value of good architecture when a small motion picture theater in a suburban town is found to be designed by an architect of extensive training and recognized ability. Here freshness of architectural expression goes hand in hand with frankness and simplicity of plan, producing a little theater distinctly individual and worthy of note. Thoroughly unpretentious, erected at a very modest cost, and seating 700 people, this new picture theater, occupying 170,000 cubic feet, steps forward out of the motley ranks of the ordinary to proclaim the charm that is invariably achieved when sincerity and naturalness join hands. At a glance one is impressed with the wholesome originality, simplicity and good taste which characterize this building. Straightforward lines, balanced proportions, and pleasing colors, which the illustrations cannot even suggest; economy without cheapness; directness of arrangement; comfort and convenience,—all combine to securing the success of this theater.

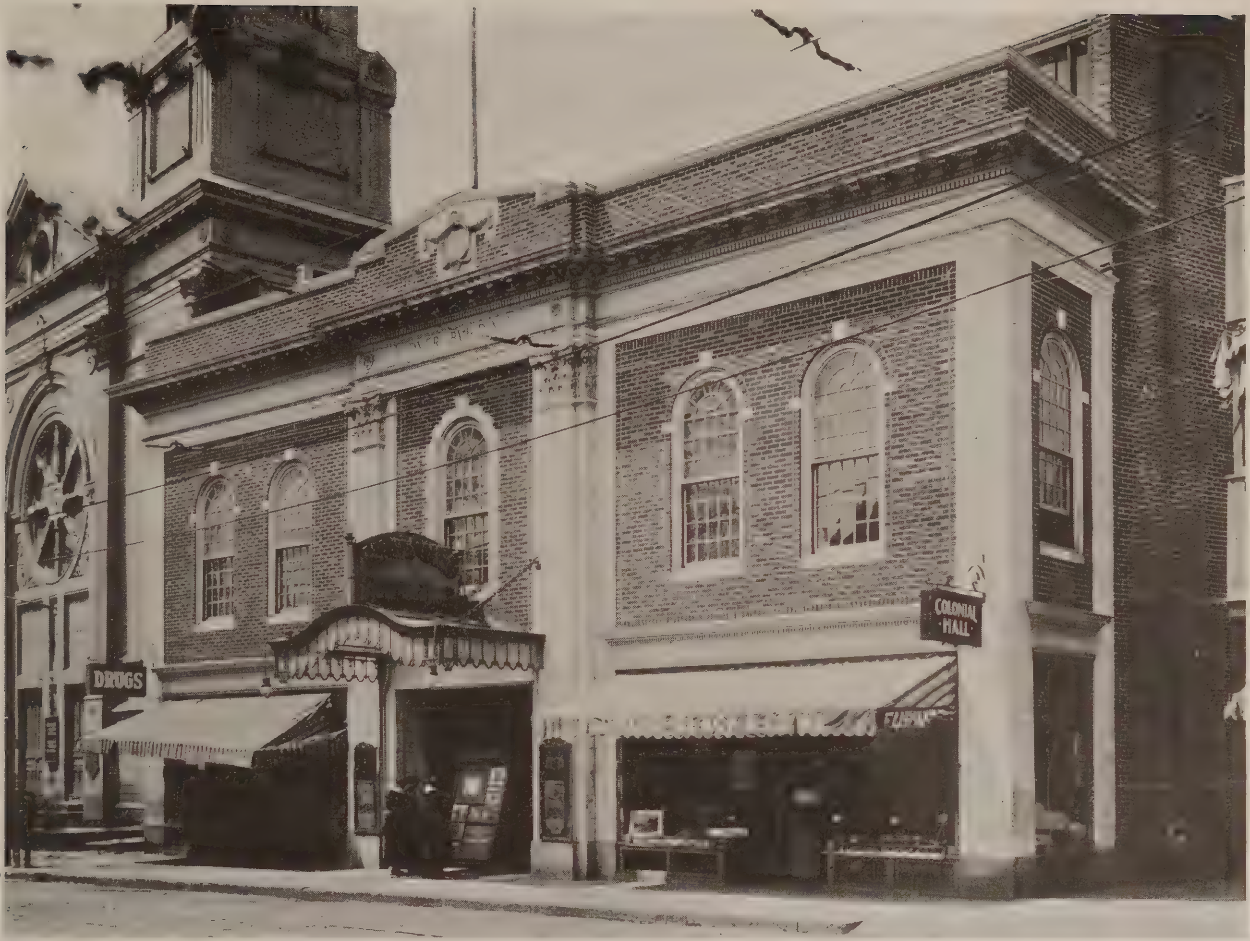
The plan takes advantage of the natural slope of the property, resulting in a seating arrangement which is the reverse of that in general use. From a deep and spacious lobby the auditorium is entered on either side of the proscenium arch and orchestra pit, and not at the opposite end as is usual. This arrangement is highly successful.



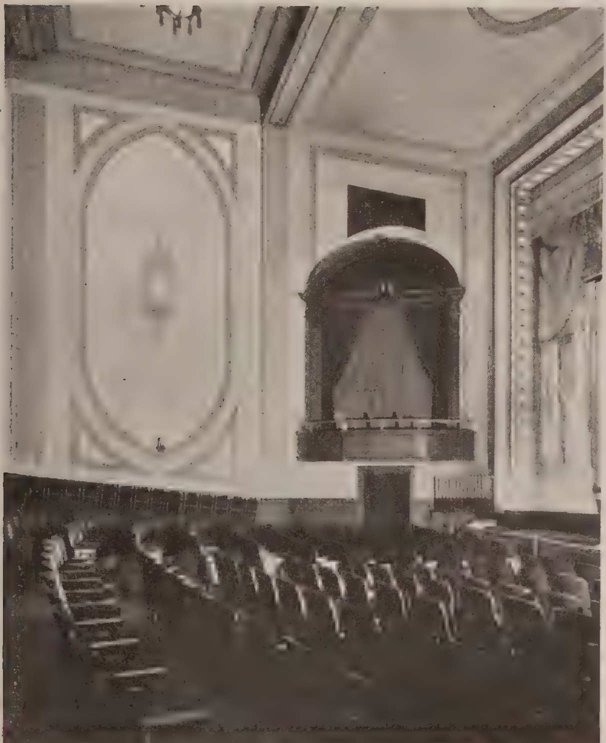
General View of the Auditorium



Detail of Stage, Showing Entrance on Either Side



THE MEDFORD THEATER, MEDFORD, MASS.
M. A. DYER, ARCHITECT



Detail of Proscenium and Wall

Detail of Entrance Door

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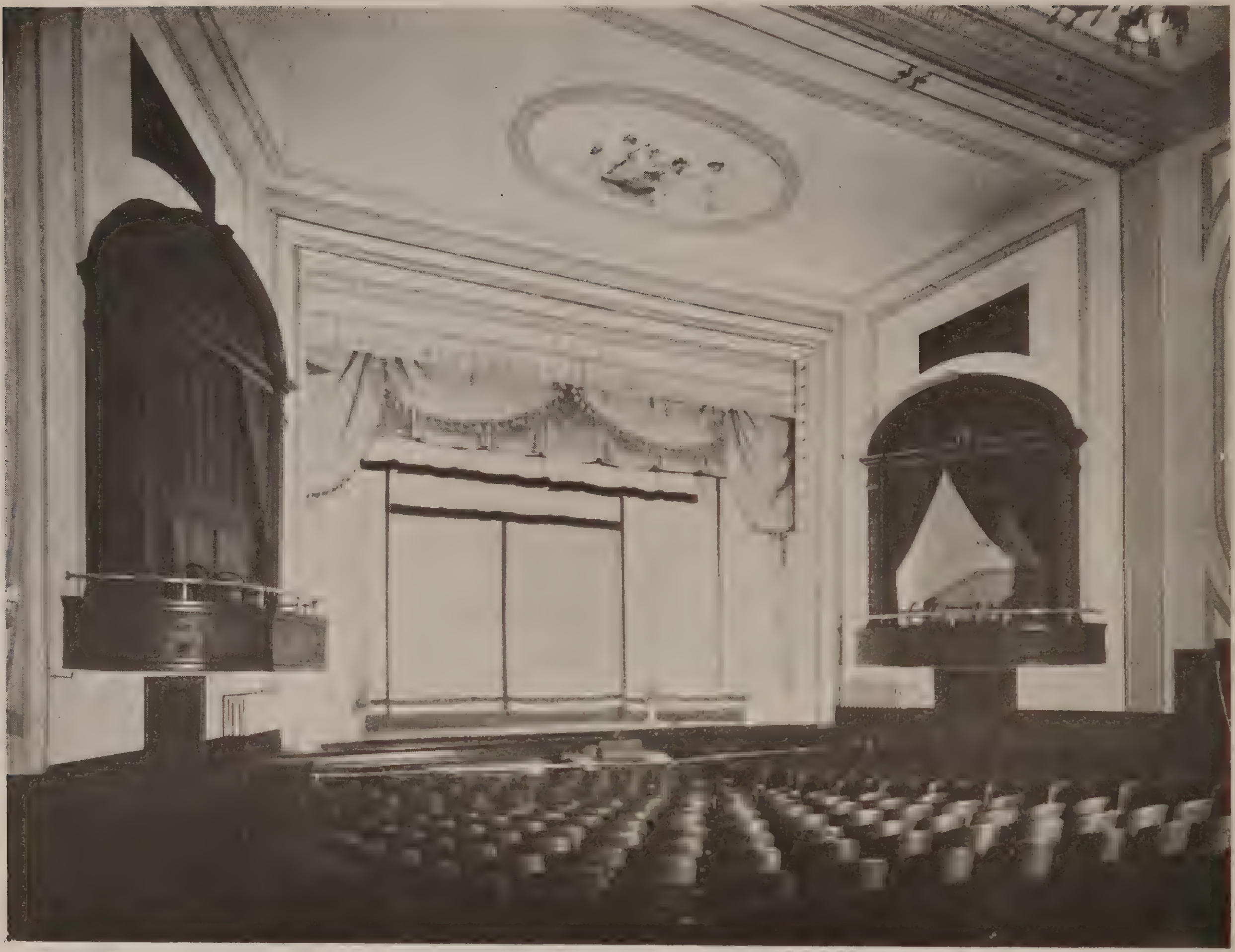

General View of the Auditorium

ALTHOUGH this little theater was built nearly eight years ago, it stands today as an unusually fine example of a small, simple and dignified design. The exterior facade, following the Colonial style, shows three bays, emphasis being laid on the center bay, which is flanked by Corinthian pilasters and contains the entrance to the theater. A simple canopy, surmounted by an electrical sign, which the architect was forced to place there, is not objectionable in the simplicity of its composition, but by its entire omission the Colonial charm of this pleasing facade would have been greatly enhanced. Glass and metal marquees and canopies can never be consistently used on buildings designed in the Colonial style, but they are invariably demanded by theater owners and managers, regardless of appearance. The side bays, which are nearly twice the width of the center bay, contain stores on the street level, with graceful, well proportioned Colonial arched windows breaking the brick walls above. A heavy entablature above the shops gives a pleasant English touch, which would have been further accentuated had small panes of glass been used for the shop front windows. However, the architectural effect of the entire facade, on the whole, is successful and pleasing, built of materials well suited to its style.

Entering through the shallow lobby, one is impressed by the dignity, scale and simplicity of the auditorium. Practically no architectural decoration is found other than in the ornamental mouldings of the proscenium arch and the ceiling cove. The two proscenium boxes are severe to the point of austerity, but they harmonize well with the pleasingly stiff design on the frescoed walls. There is almost a suggestion of Victorian primness in the simple wall decorations, which afford a grateful relief after the over-ornamented and over-colored interiors of the larger modern motion picture theaters. The space above the left hand proscenium box is enclosed in simple fashion to conceal the organ. Even the quaint, be-tasseled draperies of the proscenium curtain are reminiscent of the best parlor curtains of 1860.

The plan can easily be made out from the accompanying illustrations. The entrance lobby, balanced by a shop on either side, leads directly to the auditorium, which has a balcony seating about 450. Exit doors lead out into courts on either side. Above the stores and lobby there is located a ball room, extending across the entire front of the building.

Fireproof construction was used throughout this small building, with the exception of the interior of the auditorium, where wood was employed for the detail of the boxes, wall wainscoting and door trim. The floor of the auditorium is reinforced concrete. Having a seating capacity of 1,400, this very complete building cost $65 per seat when built in 1917.

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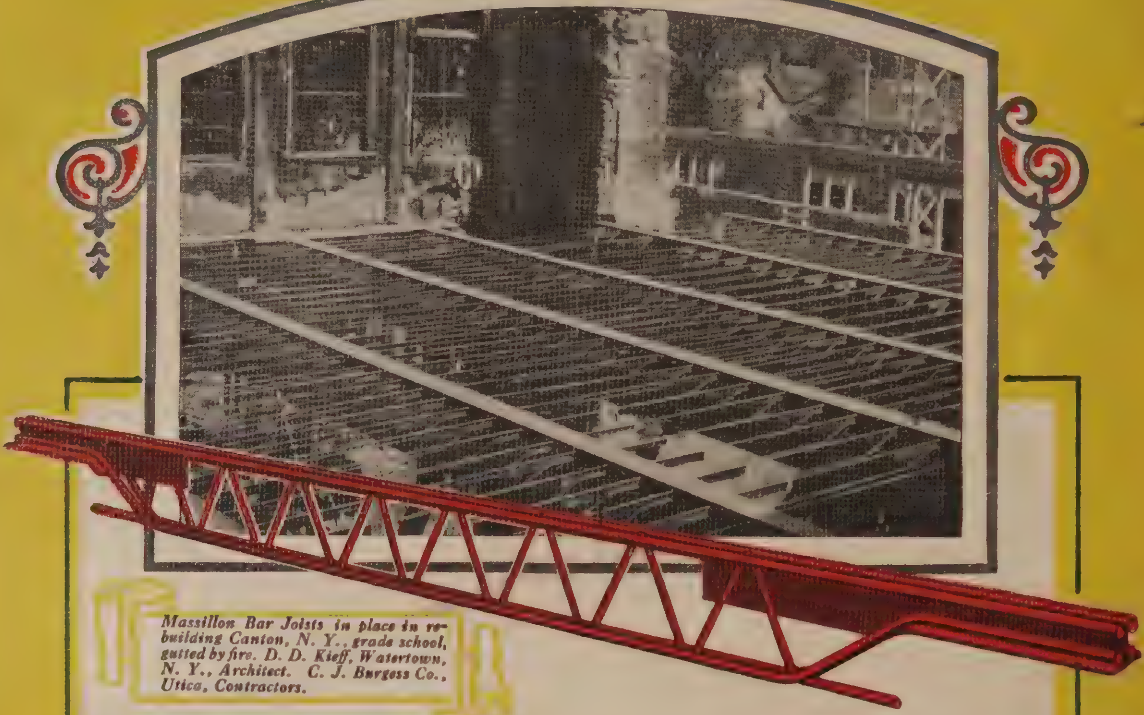

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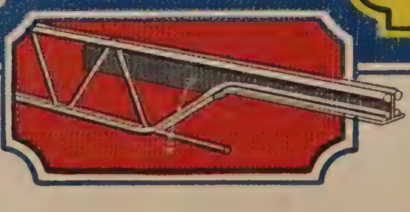

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